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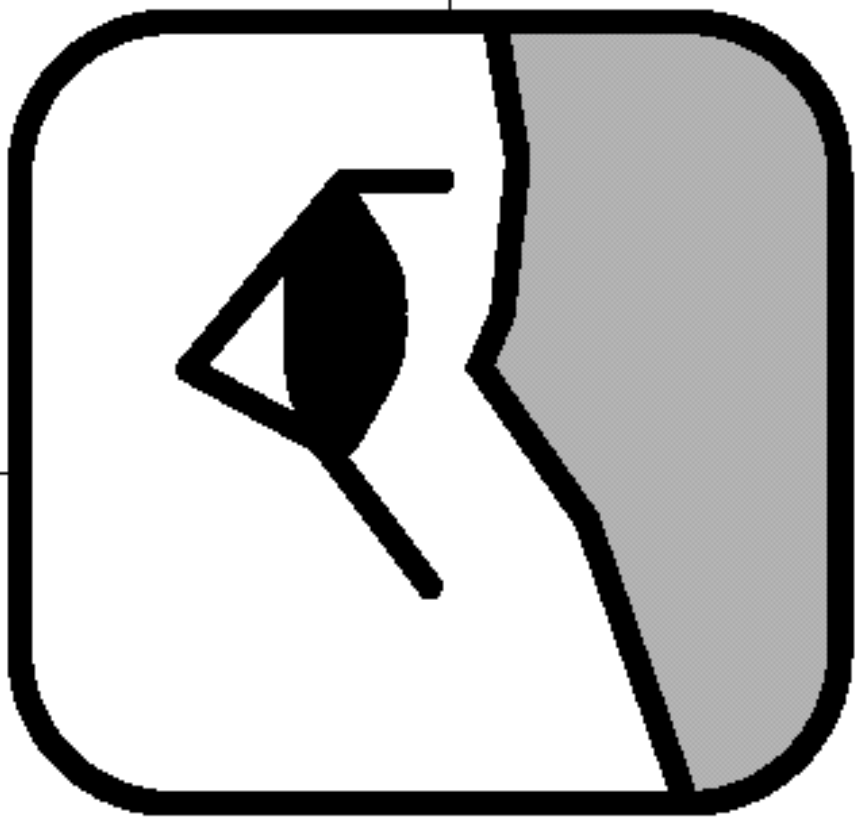
Philips Medical Systems
Development and Manufacturing Centre

Release Bulletin

EasyVision RAD
Release 4.2V2 L2
System & Application Software



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Release Bulletin

EasyVision RAD

Release: **4.2 V2 Level2**

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1 INTRODUCTION

This Release Bulletin describes:

- Features, solved problems, known limitations of Release 4.2V2L2.
- Initial installation of the software on:
  - A Stand-Alone EasyVision RAD (or Single User system)
  - More EasyVisons within a cluster consisting of a Server and one or more Clients (Workspots).
- Configuring the EasyVision RAD in a cluster
- Reinstalling and upgrading the software.

The intended reader is the service engineer.

For an initial delivery of the system, the software will be pre-installed in the factory and the Software License file will be loaded on the Stand-Alone or Server EasyVision RAD.

1.1 Abbreviations and Definitions

ACR- NEMA	American College of Radiology- National Electrical Manufacturers Association
ASW	Application Software
Client	also known as workspot
DICOM	Digital Imaging and Communications in Medicine
DOR	Digital Optical Recorder
DSI	Digital Spot Imaging
EV	EasyVision
EVRAD	EasyVision RAD
HCU	HardCopy Unit (Printer)
HIS	Hospital Information System
IP	Internet Protocol or Image Plate
MIMIT	Medical Imaging Information Technology (formerly known as EVM /ICS)
SC	Secondary Capture
OD(R)	Optical Disk (Recordable)
OS	Operating System
PACS	Picture Archiving and Communication System
PPP	Point-to-Point Protocol
RIS	Radiology Information System
SCP	Service Class Provider
SCU	Service Class User
SOP	Service Object Pair
SPI-P	Standard Product Interconnect of PMS
SSD	Sales & Service District
TCP/IP	Transmission Control Protocol / Internet Protocol
Workspot	also known as client
WW/WL	Window Width / Window Level

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2 RELEASE INFORMATION

2.1 New Features of EasyVision RAD 4.2

- New Reader support, HQ mode
- Greylevel Tool for UM and DRR
- Larger image display area
- SONY Digital Color Printer UP-D70XR support
- Use of internal Floppy Disk to save parameters (only Ultra 5 and 10)
- TIFF and JPEG export
- **DICOM import**
- **DICOM print**
- **Manual print (Print compose)**
  printing is always possible when a printer has been attached to the EasyVision. The layout of the film can be completely controlled, thanks to the pick-and-place interface.
- **DICOM Overlays**
  Grafical objects with pixel depth of one bit such as annotated text via DICOM -print and DICOM -send.
- **Shutter Algorithm**
  A new shutter algorithm has been introduced.
- **Image Presets**
  The Image Presets have been categorized according to anatomical regions. Save and erase buttons have been integrated into the Processing presets panel
- **Processing Presets Password**
  The functions creating, modifying, renaming, deleting, Importing/Expoerting processing preset can be protected by password; The standard default setting the password protection disabled.
- **DSI raw images for vascular functions**
  DSI raw images for vascular functions: compatible with DSI raw data export to enable Vascular post processing functionality (and preferably Cardiac) on images generated by DSI.
- **PCI Bus Reader interface (DMS)**
  The old Reader interface (DMS) will be available in a PCIbus version to be able to connect the previous generation of Readers.
- **Connectivity of new readers**
  Connectivity of new readers (AC500 and AC5000) via 10/100BaseT Ethernet
  Support of Multi reader configurations depending on the performance of the hardware used with either:
  - 1 DMS Reader plus 1 DICOM Reader or
  - 2 DICOM Readers
- **New hardware**
  Dome MD2-SBX framebuffer
- **Printing on Paper.** It is possible to make standard paper printouts from every EasyVision package using Print Compose or Print Protocol. To be able to support this function a PostScript printer needs to be connected to the parallel port of the EasyVision.
- **Quad Ethernet controller card.** Therefore a new PCI card containing four Ethernet controllers has been introduced: the Quad Ethernet controller card (Qfe). Although the Qfe controller physically is a single card, occupying one PCI slot, logically it is four separate ethernet controllers. In practice this is the same as if there were four “hme” cards inserted in the system.
- **Software version on F5.** The software version is displayed by pressing the function key **F5** on the keyboard.
- **TCP/IP connection timeout**. The EasyVision application software uses this parameter to determine whether a connection is still alive. In the previous release this timeout was made configurable by means of one cluster data field, whose value was used for every TCP/IP connection setting. However, one general timeout value for all connections is insufficient. Configured DICOM nodes need to have their own configurable TCP/IP time out parameter, whereas for other communication nodes a fixed timeout of 2 seconds is set (by default).
- **Setting system date and time**. Due to technical problems, the setting of system date and time has been moved to the Installation/Configuration sub-menu of the EasyVision Startup menu.
- **Survey of software license options**. The panel which displays a survey of the software licenses available has been accomodated to a clearer overall view. In a one-panel view it displays the permanent software options and the available software options with the expiring dates.

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2.2 What's new in Level 2

- **Processing Presets Handling**
  The processing presets handling has been improved. With a new panel the following functions are available:
  - select protocols for anatomic regions and /or type (i.e. UM/ DRR/All)
  - select/deselect display of MRM codes
  - protocol rename, save, save as..., delete
  - Change password
  - Import/export of all protocols either to the directory /easydata/UI/configuration or on diskette

- **User interface**
  - Improved arrangement of the images on the screen: display of images selectable in 1, 2, 3 lines
  - Option **Select all** images available
  - Numbers superimposed on images corresponding to the sequence as they were selected
  - A second PCR facility has been integrated
  - The top tool bar can be temporarily deselected to enlarge the image viewing area
  - The image information tool has been extended with the **View Name**
  - In the navigation tool images can be selected

- **Reader**
  Images can be resent by DICOM Readers (AC500/5000) after they have been modified regarding e.g. the latitude and/or sensitivity.

- **Printing**
  - An **Exam Print** button has been added to the regular print button
  - A PCR film layout with a new arrangement of the text has been created
  - **Patient name once** (printed per film) selectable
  - A print report can be selectively saved to be exported to the USIT
  - Remote printing from *digitalDIAGNOST* via EasyVision RAD. In this configuration the EasyVision RAD is serving as a Print Server. The *digital DIAGNOST* is able to remotely use all printers configured on one EasyVision RAD (printserver) at the same time.

- **Configuration**
  - PCR Readers using the **DMS** I/F (AC3/3000/9000) are now enabled/disabled via the panel **Peripheral settings** of the configuration tool (**DMS Reader present**)
  - PCR Readers using the **DICOM** protocol (AC500/5000) have now to be configured as **Reader Node** instead of **DICOM Node**.

- **Service**
  An Acrobat Reader is available in the Service menu under **PCR systems** to read Fuji Reader documentation in PDF from a CD-ROM.

2.3 Solved Problems

- **PCI reader interface problems**
  Problems with the PCI reader interface board (DMS, AC3000) causing the interruption of the image transfer from the reader and the crash of the EasyVision RAD have been resolved
- **Print out of the last film of an examination**
  If an examination with 3 routine views should be printed on a first film of size X in layout 2on1 and a second film of size Y in 1on1 then the second film has been printed only after the exam close timeout (0.5 hour) even though a new examination had been started. This has been resoved
- **Font sizes on film were too small**
  This has been improved
- **12 bit support for Fuji FM DP-L printer**
  Additionally to 8 bit printing the printing with 12 bit will be supported
- **Lifesize print problem**
  Prints on a certain layout commanded in “lifesize” were not printed in lifesize, instead they were printed with a smaller scale.

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- **Extra 180° Rotation in PA-views with landscape orientation in 4.2L1**
  In all PA-views with landscape orientation an extra 180° rotation had to be programed in the anatomy database on the USIT. This workaround was necessary because of a wrong handling of this image by the reader. This has been corrected. With R.4.2L2 this workaround has to be removed from the USITs anatomy database.
- **Resending images from DICOM readers from R.4.2L2 on**
  Images can be resent by DICOM readers (AC500/5000) after they have been modified regarding e.g. the latitude and/or sensitivity
- **Printing on two single films instead of on one film**
  A print out 2on1 was printed on 2 single film sheets if the examination was closed before the last IP cassette had been inserted in the reader. This has been corrected.

2.4 Known problems and limitations

- **Image Information Panel**
  When **Processing** is selected in the panel **Image Information** the Application software crashes instantly and will be rebooted. The Image Information panel usually allows to display data on the screen within the image such as patient demographics, S-value, barcode, etc.
- **Non-CR images**
  Non-CR images processed wrongly by an EasyVision RAD R2.3 with a PCR processing will cause problems if imported to an EasyVision RAD 4.2V2.
- **Calibration tool hangup if no film format configured**
  For any configured imager at least one valid film format must be selected. If not any valid film format has been selected the Calibration tool will hangup as soon as either grey level calibration or pixel size cal. has been selected.
- **Different display colors of Start menu**
  On some older Ultra5/10 computers the text on the Startup menu screen will be displayed in a different color any time the application or the configuration tool has been stopped.
- **Image numbers without stamps on long sequences**
  Going trough a certain sequence in the image SelectTool the system indicates a strange behavior:
  Select patient1 (3 CR images), view images, Select patient2 (CT examination, 5 runs, 278 images), cancel SelectTool, enter again the SelectTool.
  The stamps of the 3 CR images will be displayed. The remaining line displays the numbers of the CT images but not the stamps belonging to the images. This only occurs if the CT/MR images are coloured the desktop however displays only greylevel images.
- **Thumbnails with maximum Resolution in NavigationTool**
  If maximum resolution is set as zoom factor the thumbnails in the NavigationTool will be displayed as small fractions of the actual image in max. resolution.
- **Department Name in print compose tool**
  The Print Compose tool will not print the Department Name separately on film; to get the Department Name printed on film it must be attached to the Hospital Name.
- **Misleading error messages from SCSI Device**
  Images being copied on CD-Recorder do for some reason not appear on the CD-R database window. The status tool indicates in **Transferring images**: Rejected and in **Status: `image database currently not available`**. If that occurs one should take into consideration that a loose SCSI cable (internal / external) could be the cause. In order to check that all SCSI devices are connected properly enter at the **ok** prompt: **probe-scsi-all** . The system should then list all scsi devices of the current hardware.

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2.5 Contents of the Software Package

The EasyVision RAD software Release 4.2V2L2 is distributed by
The software-package for initial and upgrade deliveries: 9896 050 03232

The software-package consists of the following media:

1x CD-ROM Software EasyVision R4.2V2L2	4522 220 85962
1x Release Bulletin EasyVision R4.2V2L2	4522 220 85992
1x HD Floppy Disc 3 1/2” Service-PC Communication Software	4522 220 80921
1x DICOM Conformance Bulletin EasyVision R4.2V2	4522 220 86001

2.6 Available Software Options R 4.2

The following Software License Keys are available:

EasyVision RAD	9896 050 03241
EasyServer	9896 050 03291
EasyClient	9896 050 03311
EVRAD single user	9896 050 03301
Screen Navigator	9896 050 03341
DRR	9896 050 03251
EasyPrint	9896 050 03331
Communication	9896 050 03321
BolusChaseReconstruction	9896 050 03941
Spine	9896 050 03921
Legs	9896 050 03931
EasyStoreOD	9896 050 03361
EasyStoreCDRClient	9896 050 03351
NetView	9896 050 03951
X-Ray EasyView	9896 050 03961
ColonMap	9896 050 03981
X-RAY Valcular	9896 050 03971
EVRAD all Demo keys	9896 050 03991

2.7 Compatibility

2.7.1 Optical Disk compatibility

The following media are compatible for writing and reading images via the EasyStore drive:

- Pioneer 600 Mbyte (DEC-702) 512 bytes/sector Drive type: Pioneer DE-UH7101
- In general all image data written by previous releases can be read and used in EasyVision R4.2.
- Optical disk compatibility is not affected by the DICOM implementation. The existing compatibility is maintained.
- WORM (Write Once Read Many) ODR: These types of optical disks can still be read in EasyVision R4.2V2, but not written.

2.7.2 Hardcopy compatibility

The names of the compatible laser printers are listed in the **Imager Compatibility Manual** which is attached to the Service Manual and delivered with the system.

2.7.3 Interoperability Network-Transfer

EasyVision R4.2V2 is compatible for input of images via Network-transfers from acquisition stations with the following releases:

- DSI Release 3.2 and 4 up to 4.4 and 5.1.(PMSNet or DICOM), Rel.5.2.1

EasyVision R4.2V2 is compatible for import/export of images via Net-transfers from EasyVisions using the option "Communication" with the following releases:

- EasyVision CT/MR R1.1, R1.2 and R2.1
- EasyVision R/F Release 1.2 (Export to EV X-Ray R3.1 only if Export-option is installed)
- EasyVision R/F Releases R2.1 and R2.2
- EasyVision RAD R2.1 / 2.2 / 2.3

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- Easy Guide Neuro R1
- THORAVISION R3.3 / 5.1.2
- digital DIAGNOST 1.1 (import)
- X-Ray R3.1
- Micora Archive
- Sectra Archive

The following optical disks **cannot** be read by EasyVision R4.2V2:
- DSI Optical Disks.
- EasyVision RAD R2.1 and Printstation R2.1

2.7.4 File Export (JPEG, TIFF)

EasyVision R4.2V2 supports export of images to hard disk or CD-Recordable in JPEG and TIFF file format. File export is intended for presentation purposes only. These images are not intended for diagnostic viewing or further processing. Image quality may be limited due to reductions in image size or pixel range, or due to the use of bad compression techniques.

It is not possible to fixate images in JPEG or TIFF format when stored on CD-R with a CD-R Recorder.

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3 SOFTWARE LICENSING

With EasyVision Release 4, a new software licensing mechanism has been introduced. Every software package will be licensed to a specific system. Permanent license keys provide an indefinite time period for using an EasyVision option, initially factory installed on EasyVision and delivered on a back-up floppy.

Why new software licensing mechanism?
- because of the need for demo software packages limited for a period of time
- as a result of the new “client / server “ system architecture

There are two types of licenses, **Permanent** and **Demo** License Keys:

Permanent License Keys
- ... provide an indefinite time period for using an EasyVision option.
- ... are initially factory installed on EasyVision and are delivered on a back-up floppy with EasyVision.

Demo License Keys
- ... provide the use of an EasyVision Demo Application package for a limited period of 3 months.
- ... are active from the day of key-generation until it expires automatically after 3 months.
- ... are not factory installed, because they could (partly) expire before the installation at customer site.
- ... are not available for all option, because additional hardware may be required. Only for some demo keys hardware can be ordered. See the commercial catalogue for more information.

The keys are distributed in an electronic way (as it is too difficult to type all keys error free) as so-called **License file**.

There is one License file per Standalone EasyVision and only one per EasyVision cluster (Server + Clients). In case of an EasyVision cluster the License file is loaded on the Server, but that file contains license data for the Server **and** all its Clients.

The License file contains:
- Sun HostID of the license server system
- Name and Release identification of the option(s)
- Per option the Sun HostID of the system where the option is enabled
- Expiration date per option
- Encrypted string, being the actual license key, for each option

In case the customer orders an additional option, the new License file will contain all current license keys + the new license key(s).

3.1 Software License Procedure

The EasyVision is (usually) delivered with the ordered License keys already loaded. The Software License file will be also available on a floppy disk, which has been delivered with the system. The license file can be read via an entry in the configuration panel. Although the PCR system is a product from Hamburg you can get the Software license file on the Intranet on the **MIMIT homepage** in the section *Software Licenses*. The **<hostID>.dat** file must be copied to the directory **/easydata** as **license.dat**.

3.1.1 Adding EasyVision Options later on

EasyVision options can be ordered using the MCR/MCS numbers as listed in the commercial catalogue. After ordering, a **Request for software license file form** is sent to the SSD which has to be filled in and returned by mail or Fax to the PMG Radiography at Medical Systems in Hamburg (via HelpDesk, see chapter **Communication with Philips Medical Systems)**. With this information a new “Software license file” is generated and put to the Intranet or sent via floppy to a specified address. Now the options can be installed by uploading it via service PC or via floppy disk to EasyVision.

3.1.2 Upgrade to Release 4.2V2 L2

EasyVision RAD releases before Release 4.2 (e.g. R 2.3Lx) cannot be upgraded to EasyVision RAD R4.2 software. License keys for releases before 4.x are not valid any more.

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3.1.3 How do you recognize your License File

This is an example showing how the contents of a license file ("`8088a4c7.DAT`") may look like:

```
# Filename        : 8088a4c7.DAT
# Product         : EasyVision4.1
# Hospital        : Best Professor Holst Hosp
# City            : Best
# Country         : Netherlands
# Funlocknbr      : 670
# Ordernbr        : 481423-008
# Generation_date : 21-02-1998
# Generated_by    : Operations EVM
#
SERVER pan 8086bcf4  2900
DAEMON        easylicd /easy/appl/bin
#
#-----------------------------------------------------------------
# [Server]
INCREMENT EasyServer easylicd 4.100 14-apr-1998 1 FC63C5C81EF721C0A886 " " 8086bcf4
INCREMENT EasyClient easylicd 4.100 14-apr-1998 1 CCD395F824F3BC497428 " " 8086bcf4
INCREMENT EasyPrint easylicd 4.100 14-apr-1998 1 EC832568542A7BBB5EE6 " " 8086bcf4
INCREMENT Communication easylicd 4.100 14-apr-1998 1 DC7335B892420664DBFF " " 8086bcf4
INCREMENT GCOMCommunication easylicd 4.100 14-apr-1998 1 ECA37538E63D0DCC70FB " " 8086bcf4
INCREMENT DSLCommunication easylicd 4.100 14-apr-1998 1 DC73F588CFC6C669449F " " 8086bcf4
#-----------------------------------------------------------------
# [Client 1]
INCREMENT EasyClient easylicd 4.100 14-apr-1998 1 CC9345F87A0B740FE05C " " 808a7862
INCREMENT Stackview easylicd 4.100 14-apr-1998 1 FC03A59888A3DB1B2DC3 " " 808a7862
INCREMENT Volume easylicd 4.100 14-apr-1998 1 5C03A54851957E540FA9 " " 808a7862
#-----------------------------------------------------------------
# [Client 2]
INCREMENT EasyClient easylicd 4.100 14-apr-1998 1 1CF3C5B88B35C2B688FA " " 808892a9
INCREMENT EasyReview easylicd 4.100 14-apr-1998 1 1CB305D81F99BA37EB32 " " 808892a9
....
```

3.2 Upload of the Software License File ...

After installation of the software on a Server or Stand-Alone system, the software license file must be uploaded. This is not necessary on a Client, because the Client is using the license file of its Server.

3.2.1 ... via Null modem

1. Connect the null modem cable to the EasyVision and the Service PC. Connect the Service PC (See Service Manual) to serial port B and reboot the EasyVision.
2. The software license file is delivered with the system on a floppy disk with the name <host-id>.dat. The <host-id> is always the HostID of the server or stand-alone workstation. Together with this file the Kermit program is available on the floppy. It is also possible to download the software license file with the name <hostid>.dat from the Intranet to your PC.
3. Copy the file <host-id>.dat to the service PC hard disk in the root directory.
4. Rename the file from <host-id>.dat to **license.dat**
5. If not yet done, insert the disc (4522 220 84831), delivered with the system into drive A:.
6. Execute the following procedure:

`a:`	Go to drive a:
`kermit`	Start kermit program. If the screen stays black: press **Enter**
login: `Service` **Password: `<host-id>`**	Login on the EasyVision. Password is the HostID of the EasyVision

7. Select: **2 PCR Systems**
8. Select: **2 File Transfer Menu**
9. Select: **3 Manual File Transfer**
10. Enter as follows:

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cd /easydata	
kermit	Start Kermit on the EasyVision
Server	Put Kermit into Server mode
KERMIT READY TO SERVE...	Response of entering the Server mode
Alt-X	Back to the service-PC
send **Local Source File:** c:\license.dat	Send the software license file from the harddisk or floppy disc to the directory on the EasyVision.

Remote Destination File: /easydata/license.dat

11. To stop Kermit enter:

finish	stop the server mode of the remote Kermit
connect	Go to EasyVision
quit	Stop the remote Kermit
exit	Back to the Service Menu
Alt-X	Back at the login prompt of the EasyVision
quit	Stop the Kermit program on the service PC

NOTE

*The name of the license file in **/easydata** must be **license.dat***

3.2.2 ... via floppy drive

The Sun Ultra 5/10 have floppy drives. If that applies proceed as follows:

1. Insert floppy to diskette drive (not write-protected)
2. Goto **Service Menu**
3. Select: **2 SunOs Menu**
4. Select: **1 C-shell**
5. Enter the following commands:

cd /	change to the Root directory
mkdir /floppy	if not already done: make directory /floppy
mount -F pcfs /dev/diskette /floppy	mount the floppy
cd /floppy	change to the floppy
cp <host-id>.dat /easydata/license.dat	copy the license file to hard disk
cd /	change to Root to prepare unmount
umount /floppy	unmount the floppy
exit	To return to the Service menu

NOTE

You must unmount the floppy. If you don't unmount, data on floppy will be corrupted

---

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4 SOFTWARE INSTALLATION

This chapter describes the procedures to install the software R4.2 on an EasyVision RAD Stand-Alone as well as on an EasyVision RAD Server and EasyVision RAD Client(s) "Workspot(s)" cluster-combination.

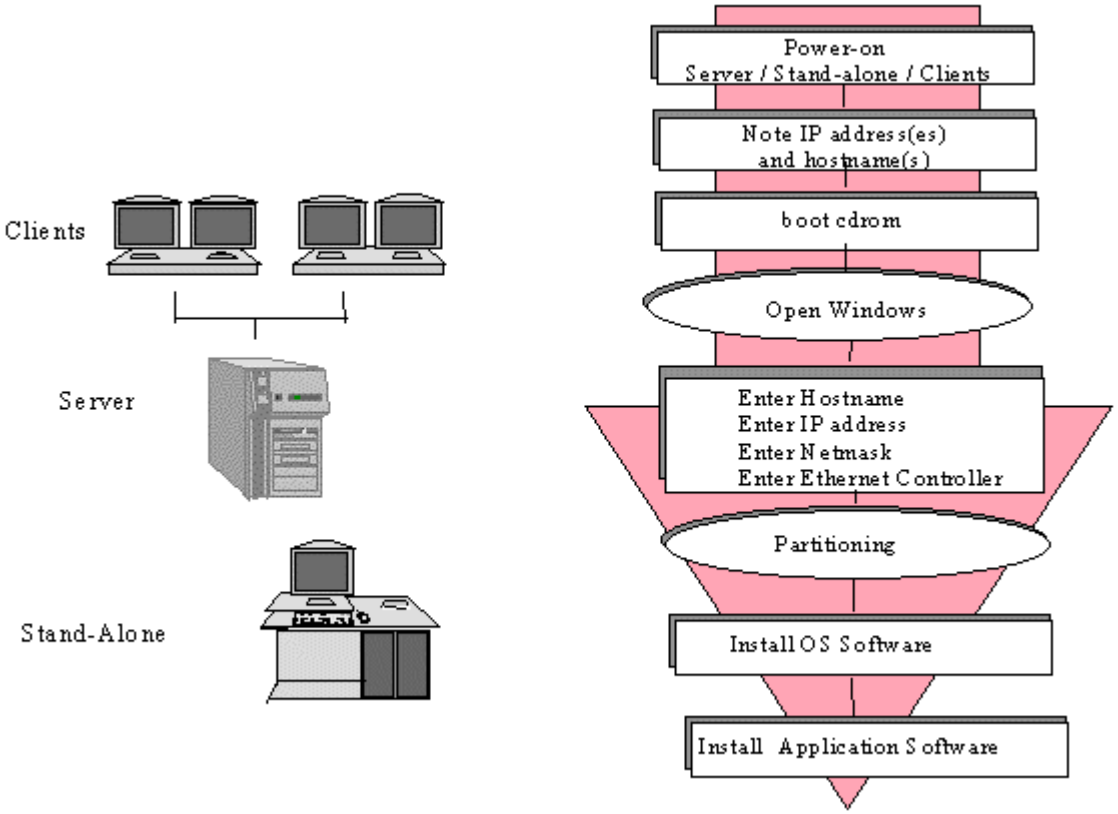
Within an EasyVision cluster, the Server and its Clients must all run on the same release! So, when adding a R4.2.2 Client to a R4.2.1 Cluster, the Server and all its Clients must be upgraded to R4.2.2.

NOTE

*In case of **upgrading the EasyVision s**tart reading chapter Upgrading to Release 4.2V2 L2 before installing the software.*

***Do not** install any Service Packs or Software Patches for Level 1 of Release 4.2 of the EV RAD software after Level 2 has been installed.*

Flow Chart for software installation
(valid for every station, regardless if it is a Server, Stand-Alone or Client).



In case of a Server/Client cluster repeat the software installation for all Clients and continue with chapter **Configuring a Server/Client cluster**.

(01.0)
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4.1 Installation of the Operating System

1. Shutdown the system and wait for the **ok** prompt.
2. Put the CD-ROM with the EV software on the tray of the CD-ROM drive, close the tray and wait a few seconds.
3. Enter **boot cdrom** to start booting from CD-ROM (Ignore messages like **hsfs mount failed, trying ufs...)**
4. After a while **Open Windows** is started and a shell tool panel will appear.
5. Answer the following questions (example):

```
Enter hostname:                  EV1
Enter IP address:                192.168.12.34
Enter netmask [255.255.0.0]:     255.255.255.0
Ethernet controller:             [le<nbr>,hme<nbr>,qfe<nbr>]
                                 (hme0 is always right)
```

In case of a Stand-Alone or a Client workstation only one Ethernet controller is available.
In case of a Server the IP address and type (hme, le, qfe) of the controller from the Client side must be filled in as indicated in the following table.

6. Now choose **1 Install OS**.

```
OS Install Menu:

What do you want to do?:
1 Install OS
2 Reformat image disks
3 Login as root
0 Shutdown

Starting Installation
Password:    password
```

7. The following message will appear on the screen:

```
Welcome to the OS installation utility...

Remember that after an OS installation you have to
(re)install the application and (re)configure!!!

Press <return> to continue
```

8. The system response will be:

```
The system will be installed for the EasyVision product

Taking disk c0t3d0 as EasyVision System Disk
 Using "<disk-type>" as disk type
Taking disk c0t2d0 as EasyVision Image Hard disk
 Using "<disk-type>" as disk type
```

For a Client system this disk will be skipped, since there is no imagedisk available for a Client

```
Taking disk c0t1d0 as EasyVision Additional Image Hard disk
 Using "<disk-type>" as disk type
```

If present; else a warning is given, or skipped in case of a Client system
Formatting takes between 5 and 15 minutes per Gigabyte.

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9. Now choose:

- [**F**]ormatting
  In case of an unformatted disk or if the feeling exists that bad blocks have arisen.

- [**P**]artition
  In case of just loading the software: let partition all disks.

- [**S**]kip
  If an image disk is available in a client, skipping is necessary.

If the System Disk is an EIDE disk, formatting is excluded in the question above, because formatting of a EIDE disk is not possible yet.

Warning

Formatting of the Image Hard disk or Additional Image Hard disk causes deletion of all your images in the database! Formatting includes also partitioning.

10. Answer accordingly:

```
Are these choices correct (Y/N)?:
```

Formatting and/or partitioning will be executed now according to your answers.
Then the file systems are created on the System Disk and the Operating System software is copied from the CD-ROM to the System Disk. This will take another 30 minutes.

11. When the Operating System is installed, the system will shutdown:

```
The system is coming down. Please Wait.
System Services are now being stopped.
```

The screen turns to black and an automatic reboot from the System Disk will be done. After the reboot the system continues with the following menu:

```
Application Install Menu:

What do you want to do?:
    1 Install Application
    2 Login as root

    0 Shutdown

Enter the number of your choice:
```

Continue with the following section.

4.2 Installation of the Application Software

1. Let's assume that the system displays the following screen:

```
Application Install Menu:

What do you want to do?:
      1 Install Application
      2 Login as root

      0 Shutdown

Enter the number of your choice:
```


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Choose option **1 Install Application** .

```
Starting installation
Password: password

Welcome to the Application installation utility for
EASYVISION

Insert the distribution CD-ROM containing the Application software and
press Return to continue:
```

After about 5 minutes the software installation will be completed
The following panel will appear:

```
Config Menu:

What do you want to do?
   1 Start Configuration
   2 Reinstall Application
   3 Login as root

0 Shutdown
```

Remove the CD-ROM from the drive

NOTE

If the CD-ROM is still in the CD-ROM drive after the application is started, it is not possible anymore to eject the CD-ROM by pushing the eject-button on the drive.
You must exit the application to be able to use the eject button.

---

2. If the installation of the **Software License File** is **NOT necessary** skip this chapter and continue with :
   - in case of a Stand-Alone installation: **Configuring a Stand-Alone system**
   - in case of a Server/Client cluster repeat the software installation for all Clients and continue with chapter **Configuring a Server/Client cluster**

   If the installation of the Software License File is needed
   Choose option **0 Shutdown**
   - Power off the system
   - Continue with paragraph **Installation of the Software License File**

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5 CONFIGURATION

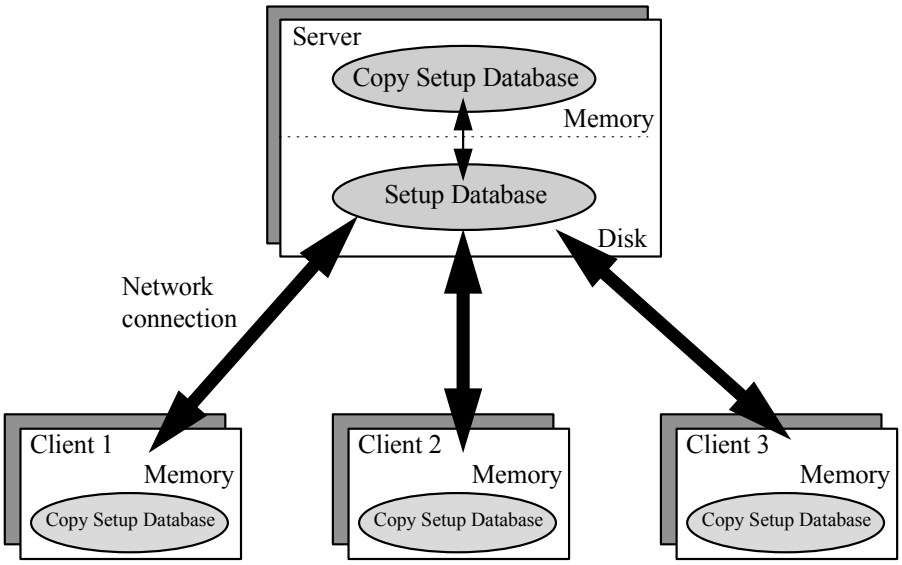
Before starting the configuration procedure, we recommend to collect all IP addresses, Application Entity Titles (DICOM), node names, etc. and fill it in to the cluster configuration list attached to the **System Manual Installation** of the PCR system.

There are two kinds of possible configurations for EV RAD in a PCR cluster:

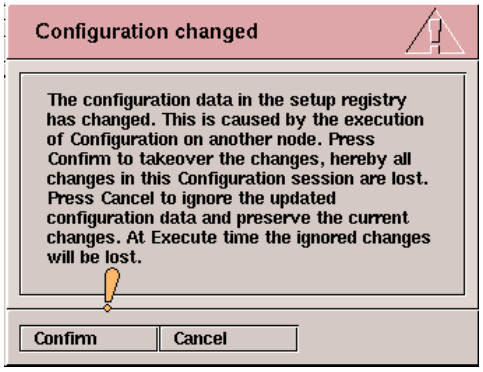
- PCR Stand-alone system
- PCR Client/Server system

5.1 Setup Database

The Setup Database is running on the Server and contains the information of all EasyVisions in the cluster. Via the network connection the Clients take over their own configuration and the configuration of the modalities. This means that the Clients don't have their own Setup Database.



If one or more stations are running in Configuration mode simultaneously and changes have been made, the next panel can pop-up.


Configuration changed
The configuration data in the setup registry has changed. This is caused by the execution of Configuration on another node. Press Confirm to takeover the changes, hereby all changes in this Configuration session are lost. Press Cancel to ignore the updated configuration data and preserve the current changes. At Execute time the ignored changes will be lost.
Confirm
Cancel

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5.2 Starting up the configuration program

There are 3 possibilites to reach the configuration menu.

1 . From the Startup menu

- Choose **4. Configuration**:

```
EASYVISION STARTUP MENU

What do you want to do?:
   1. Start Application
   2. Start Customization
   3. Go to Service Menu
   4. Go to Installation/Configuration Menu

   0. Shutdown
```

- Choose **2. Start Configuration**

```
Installation/Configuration Menu:

What do you want to do?:
   1. Install Application
   2. Start Configuration
   3. Change IP address
   4. Change System's Date and Time

   0. Return to Startup Menu
```

- Enter password:

```
Starting configuration
Password:    password

 Starting configuration takes about 30 seconds.
```

2 . Software was loaded from scratch

- If the software was loaded from scratch (e.g. after replacement of the system disk), the following menu will be displayed:

```
Config Menu: What do you want to do?

   1. Start Configuration
   2. Reinstall Application
   3. Login as root

   0 Shutdown
```

Choose **1. Start Configuration**

3 . Press the 'Open' button on the keyboard

The configuration program can also be started when the application is running. This mode is just meant for checking the configuration not for making any changes.

- Press the **Open** button on the keyboard to switch to the Open Windows environment.
- Click **right mouse button** and select **Configuration**.
- When finished, double-click the **radUI** icon.

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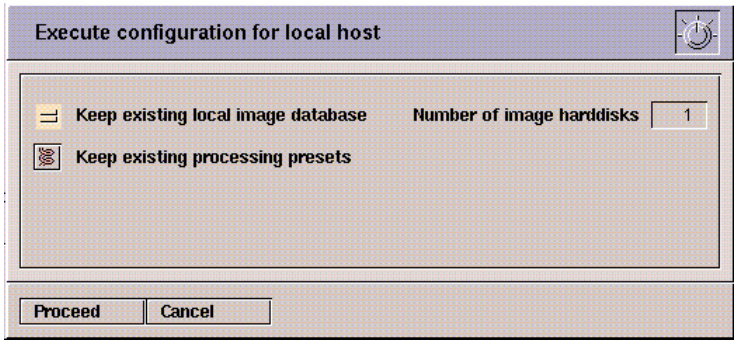
5.3 Execute the configuration

To make changes effective you need to click **Execute...** to perform the actual configuration of this EasyVision and to save the setup database file to hard disk. Before execution starts this panel is displayed:



The option **Keep existing local database** is only selectable if a correct and compatible database (image- and Setupdatabase) exists. **The image database will be deleted if this option is not highlighted!**

With the selection button **Keep existing processing** the following selections are possible:

- **Keep existing processing presets**
  The current processing presets will be kept as they are
- **Reset processing presets to factory settings**
  The default presets will be recovered as they are on a complete new installed system
- **Merge factory presets and current presets**
  Presets already existing in the SetupDatabase will not be overwritten by the factory presets
- **Merge factory presets and current presets. Current presets will be replaced by factory presets which have the same key**
  Presets in the SetupDatabase may be overwritten by properties. Example: 5 presets stored in a property file in a directory will overwrite other presets with the same name.

When finished click **Proceed** to finalize the configuration.

The system performs a reboot (if necessary) and returns with the Start-up menu.

NOTE

*After executing the Configuration, a copy of the **config.cfg** file and the set-up database is written in directory `/dbadmin`, as a backup. This directory is NOT overwritten when you re-install the software. This can be very handy because there is always a back-up present on the system. The Config program always looks first to the directory **`/easydata`** if a config.cfg and a set-up database is present, if not it will take the `config.cfg` and the `setup` from the directory `/dbadmin`. So after a re-installation you only have to execute the Configuration to get a working system again. This procedure however also contains a risk. If your config.cfg file and/or the set-up database is corrupted (e.g. due to uploading a corrupted file from the backup floppy) you might get stuck in not getting the system to work properly. In that case refer to the next paragraph to start a script from the service menu to remove all config files.*

5.4 Changing Date and Time

1. From the Startup Menu choose 4 Installation / Configuration Menu
2. Then choose **4. Change System's Date and Time** enter **Password.**
3. To change the system's date and time, use the format **yyyy mm dd hhmm** in one string.

NOTE

If the date and time are changed back in time, the system must reboot. So answer "y" to the question asking for conformation of the reboot.

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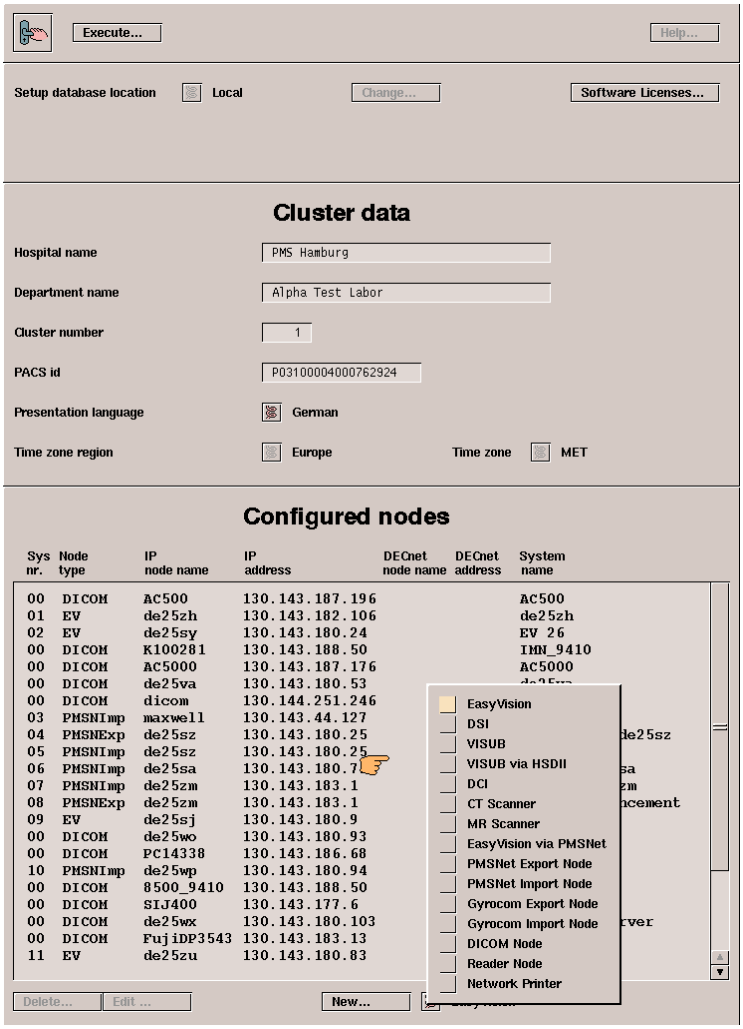
5.5 Configuration Main Panel

Start-up the configuration program as decribed before: the configuration main panel appears. From here you reach all other configuration panels. In the following paragraphs you will get further explanations on each item.



5.5.1 Setup database location panel

Setup database location : local
In case of a Stand-Alone or Server EasyVision, the Setup database location is set to local.

Change…
Only to be used when a system is changed from a Stand-Alone system to a Client and vice versa.

Software Licenses…
Clicking this button will give the software license file overview.

5.5.2 Software License Panel

In this panel the software license file can be modified and/or a visual overview can be given.

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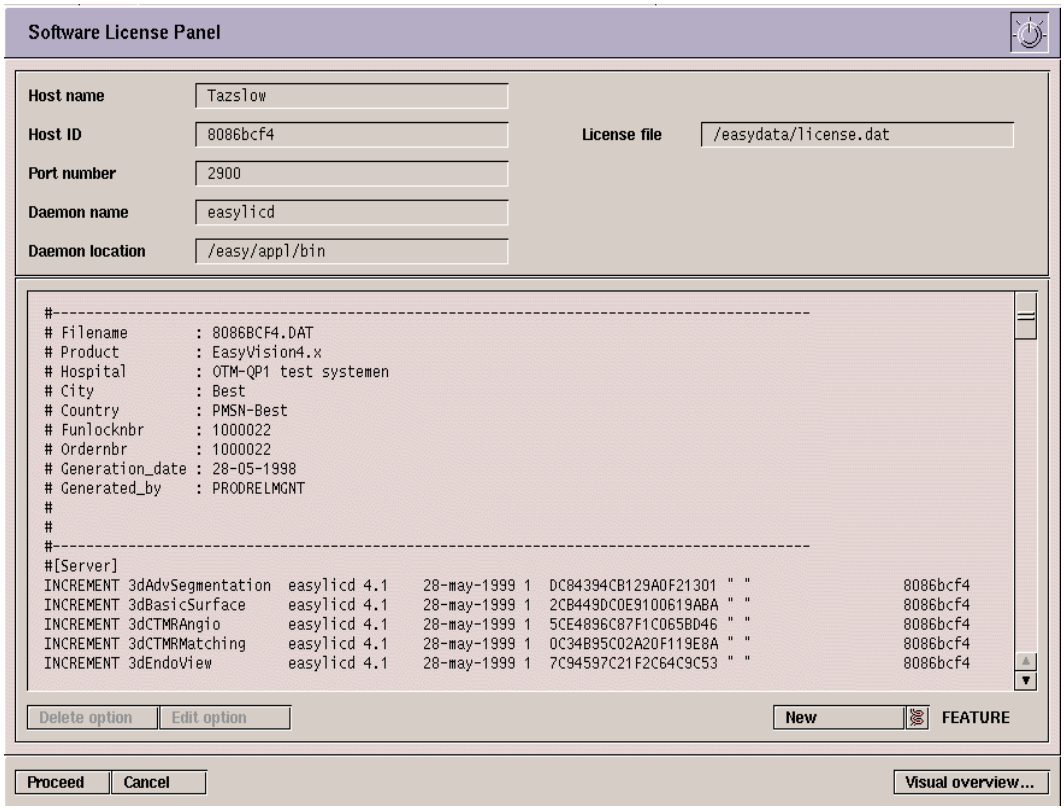


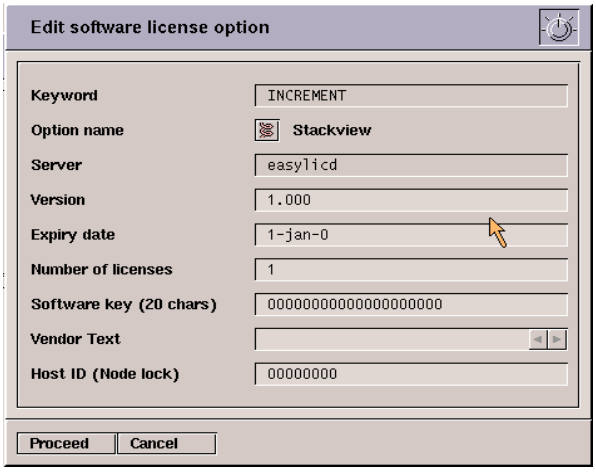
5.5.2.1 Modifying the License Key

Modifying the software license file can only be done on a Stand-Alone or Server EasyVision. Options can be added, deleted and edited.
Every line consists of one option with all relevant parameters and the encrypted code. Since there is a check-sum on every line, nothing can be changed from that line. Only complete lines (options) can be edited, added or deleted. It is not advised to modify the lines. Use the **New...** button to add an option or upload a complete software license file. The software license file **license.dat** must be located in the directory **`/easydata`**.

Delete option
An option can be selected (high-lighted) and clicking this button will delete the option. **No undo possible!**

Edit option
Gives the possibility to edit options (not recommended).

New...
First select if the option should be of the **increment** or **feature type**. Very experienced people should only use the possibility of 'free format'. Clicking **New**... will display the **Edit software license option** panel.



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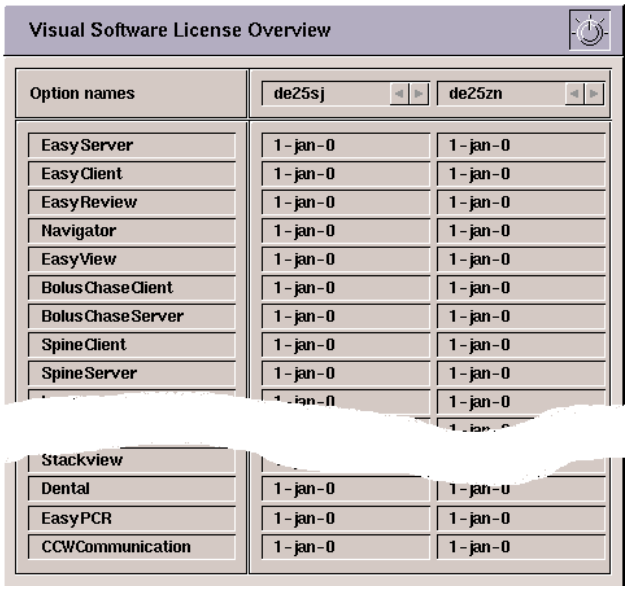
Select the option name, enter all relevant information and click **Proceed.**

How to obtain the relevant information is dependent on the way you have received the software license file. This can be on floppy disk, via e-mail or on paper (fax). It is advised again that if you have to add more options, it might be easier and less error sensitive to upload the complete new software license file.

5.5.3 Visual overview

Click **Visual overview…**
The following panel will become visible (just an example).



In the overview panel all software options and their expiration dates are shown on the Server, also the Client Licensed Options are visible.

5.5.4 Cluster data

Hospital name
Will appear on film, max. 30 characters including spaces.

Department name
Will appear on film, max. 30 characters including spaces.

Cluster Number
Sequential identification number for clusters. Must be unique within the hospital. The number will be used for the identification of all the images which will be made by this cluster.

PACS ID
The PACS ID is associated to a single hospital and is therefore identical for the different system clusters within that hospital. It is composed by using phone numbers: <3 digits country access nbr.><6 digits distr. nr.><8 digits subscriber nbr.> If it really is impossible to generate this number, then take as a temporary measure: PACS ID=P00000000000000000 (17digits).

Presentation language
Select the language to be used within the application.

Timezone region
Set of timezones. Select the right country or part of the world.

Timezone
Select this timezone after selecting the timezone region.

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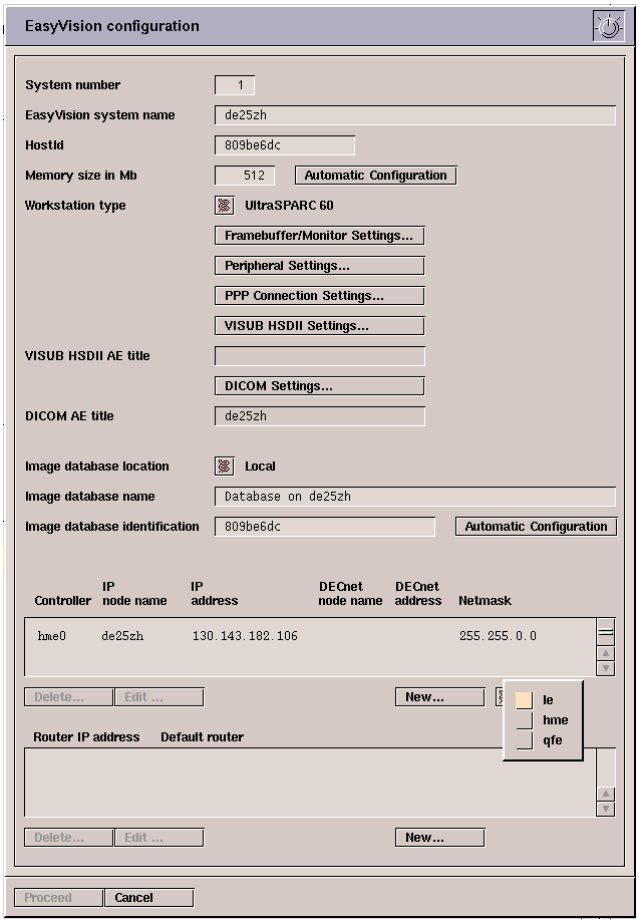
5.6 EasyVision Configuration



System number
This is a sequential identification number within the cluster for the involved system
Enter a unique number for this EasyVision.

EasyVision system name
Enter a unique name for this EasyVision workstation.

HostID
If configuring the EasyVision you are working with, the HostID is already entered.
During power on the HostID appears on the screen. The HostID consists of 8 digits/characters If the hostid contains characters then they must be entered in lowercase.

Memory size in MByte
The indicated value must be equal to the real size of the memory of the EasyVision. If configuring the EasyVision you are working on click **Automatic Configuration**. This button does not work when you are configuring an other EasyVision R4.

Workstation type
Select one of the choices which apply: UltraSPARC 5/10/60.

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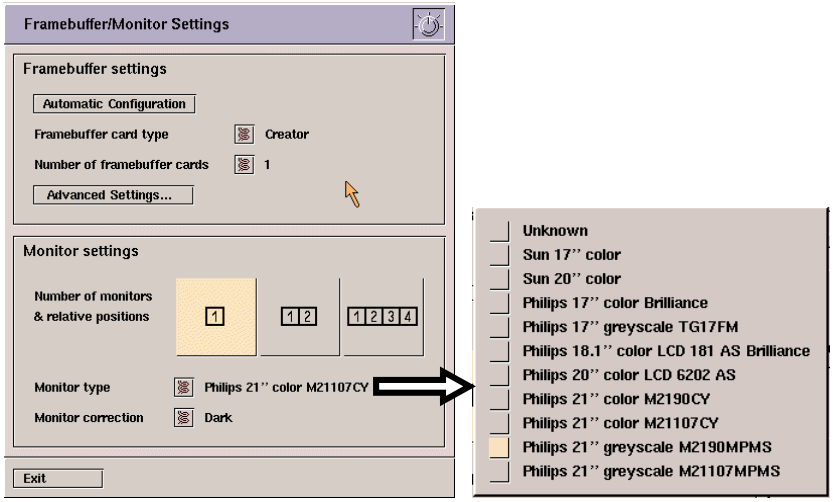
5.6.1 Framebuffer/Monitor Settings...



Framebuffers
Click **Automatic Configuration** to set the number and type of framebuffer cards automatically. This will only work for the EasyVision you are working on!

Exception: Configuring a **Dome Md2/PCI** board **don't use the "automatic configuration"**. It does NOT work.

The following settings must be selected manually:

- Framebuffer card type: **Dome MD2**
- Number of frame buffer cards: **1**

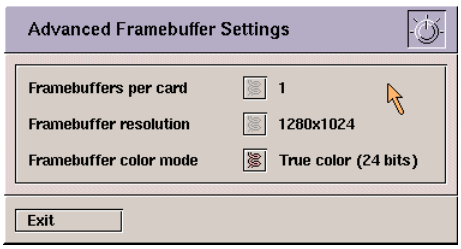
The **Advanced Settings....** will then, in most cases, also be correct.

Monitors
The monitor settings must be changed manually. Right click to the monitor type 'spring' will show all supported monitors. See also the following two tables.

Advanced Settings…
Clicking to this button will open the following panel.

NOTE

Advanced settings are required if a Grey Scale monitor is used on a Color Frame buffer. In that case the setting must be 'Grey'. See also the following two tables



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Monitor type	Frame-buffer type	Frame-buffer color mode	Frame-buffer resolution	Max number of fb-cards in one system	Number of monitors per fb-card
Philips 17” color Philips 18.1” color LCD 181 AS Philips 21” color M2190CY Philips 21” color M21107CY Philips 21” grey scale M2190MPMS Philips 21” grey scale M21107MPMS		Pseudo color	1280x 1024	2	1
Philips 21” grey scale M2190MPMS Philips 21” grey scale M21107MPMS	Dome MD2	Grey	1280x 1024	1	2

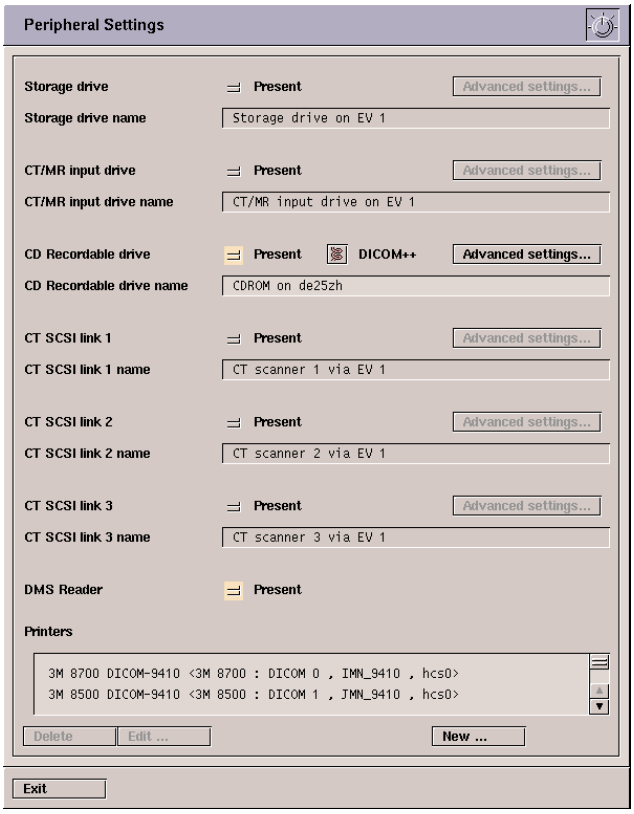
Ultra 5/10 framebuffer / monitor option dependencies

Monitor type	Frame-buffer type	Frame-buffer color mode	Frame-buffer resolution	Max number of fb-cards in one system	Number of monitors per fb-card
Philips 21” grey scale M2190MPMS Philips 21” grey scale M21107MPMS	Dome MD2	Grey	1280x 1024	2	2
Philips 18.1” color LCD 181 AS Philips 21” color M2190CY Philips 21” color M21107CY Philips 21” grey scale M2190MPMS Philips 21” grey scale M21107MPMS	Creator	Pseudo Color True color	1280x 1024	1	1

Ultra 60 framebuffer / monitor option dependencies

Click **Exit** after all settings are entered and return to the Configuration panel.

5.6.2 Peripheral Settings...



In this panel all peripheral units can be configured.

Advanced settings...
The default values are in most cases correct. See also paragraph **Advanced Settings.**

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Storage drive (and name)
If the STORE option is available, click **Present** and enter a freely chosen name, to be used within the application to identify the optical disk drive.

CT/MR input drive (and name)
If the CT/MR optical disk input option is available, click **Present** and enter a freely chosen name for the optical disk drive.

CD Recordable drive (and name)
With this drive is meant the CD Recordable drive and NOT the CD ROM drive used with software installation. If this option is available, click **Present** and enter a freely chosen name for the CD Recordable drive.

DICOM++
The DICOM or the DICOM++ protocol (including private attributes) can be selected, depending on the images from or to the CD Recordable.

CT SCSI link name
If a CT scanner is connected to the EasyVision via a Direct SCSI Link (DSL) click **Present** and enter a unique name. This name will appear within the Application program. Up to 3 DSL connections can be made, depending on the hardware.

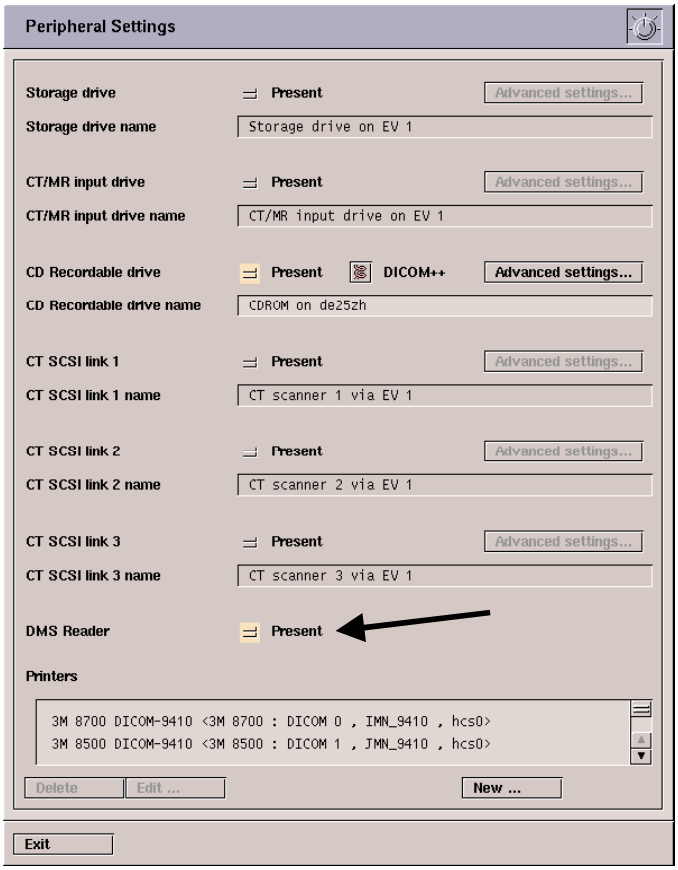
Printers
All kinds of printers can be configured for the EasyVision R4.2V2. The procedure for this is described in the next paragraph.

When finished, leave this panel by clicking **Exit.**

5.6.2.1 DMS Reader

There is a new entry called **DMS Reader** meant for PCR AC3 /3000 and 9000 Readers connected to EV RAD via DMS interface board. The selection **Present** can be activated or deactivated.

PCR Readers AC 500/5000 have to be configured as Network node using the node type **Reader Node**.



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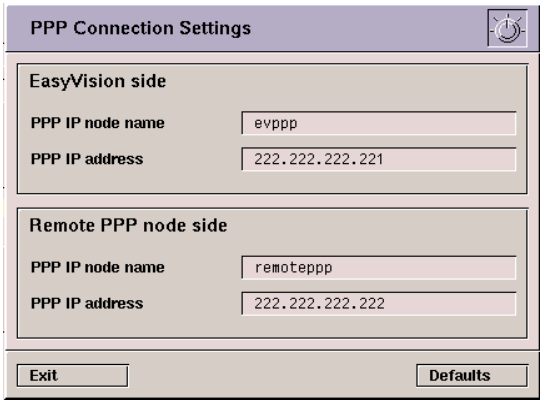
5.6.3 PPP Connection Settings…

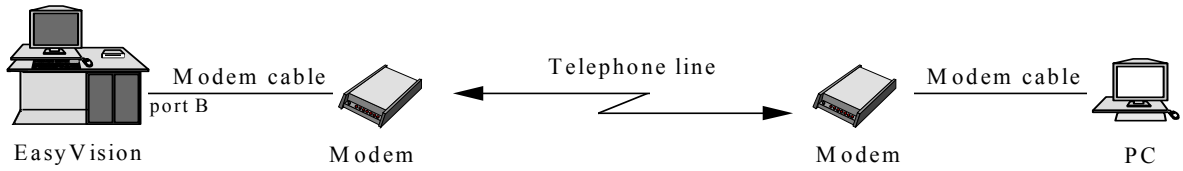
Point-to-Point Protocol. If a modem is connected to the EasyVision, the settings must be entered. Clicking to this button will result in the following panel:



At the EasyVision side
Enter the PPP IP node name and PPP IP address.

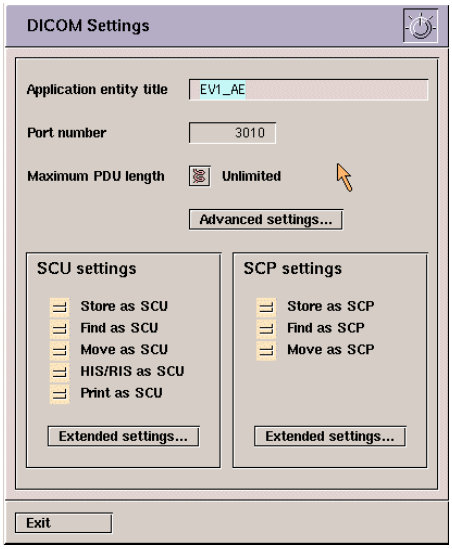
At the Remote PPP side
Enter the PPP IP node name and PPP IP address.

Defaults
Clicking to this button results in the settings as shown:
How to login from the remote computer is described in the Service Manual “Remote Service”



5.6.4 DICOM Settings

With the introduction of R4.2 the AE title is freely selectable. In earlier releases the AE title was equal to the IP node name.



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These settings are the DICOM settings for the EasyVision itself. Compared to configuring a DICOM node, there are no HIS/RIS possibilities as SCP and it is not possible to print as SCP, but as SCU.
See also: **Advanced DICOM settings**.

NOTE
In most cases the default values will be correct.

Image database location
With a Server or Stand-Alone EasyVisions this parameter is set to local.

Image database name
Enter a unique name for your image database on this workstation, it will also appear within the Application program.

Image database identification
Click to **Automatic Configuration** to get the correct image database identification. This will only work for the EasyVision you are working on! Only selectable if database location is set to **Local**.

Ethernet Controllers
See paragraph **Ethernet Controllers.**

Routers
See paragraph **Routers.**

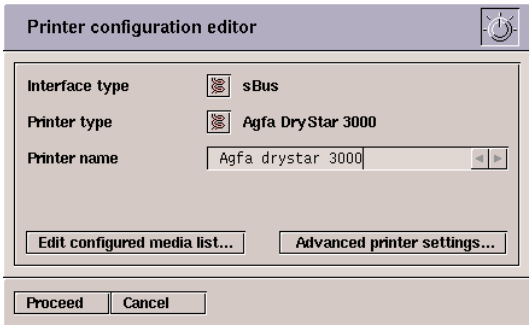
After all configuration items are filled in, click **Proceed** in the Configuration panel.
The EasyVision main panel appears.

If ready at this point:
- continue with paragraph **Execute the configuration**.
  or
- start with next step, configuring modalities, other EasyVisions, DICOM nodes etc. according chapter 6.

5.6.5 Configuring printers (hardcopy units)

Select **New...** from the Peripheral Settings panel (Figure 11) to add a printer connected to this EasyVision. If one or more printers have already been configured highlight the printer and click **Edit...** to modify or click **Delete** to remove the highlighted printer.

The following panel will become visible (as an example):



The printer configuration editor has two modes:
1. Standard printer configuration
2. Advanced printer configuration

The advanced printer configuration panel is an extension of the standard printer configuration panel.

Interface type
The interface type controls the contents of the list of selectable models. Clicking the right mouse button will show the available interface types:

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- **PCI/SBus**: Point to point printers connected via an sBus or PCIBus interface card using a 3M compatible protocol
- **SCSI**: printers connected via the SCSI bus
- **DICOM**: printers connected via the ethernet and using the DICOM protocol
- **network**: printers connected via the ethernet and using an other protocol than the DICOM protocol.
- **file**: with this option you can select a real “paper printer” A4 (Europe) or Letter (USA) connected to the parallel port of the EasyVision, or you can select “philips to file”, which generates a sheet in a JPEG or TIFF file in the directory /easydata/filePrints.

Printer type
Pressing the right mouse button will show a list of available printers.

Printer name
The name of the printer as it will be used in the user interface. This name must be unique in the cluster. This is important when configuring a remote printer via an EasyVision

DICOM Printer AE title / Network service name
The field **DICOM printer AE title** is only displayed when the DICOM interface is selected.
The field **Network service name** is only displayed when **network printer** is selected.

- DICOM printers: Before a DICOM printer can be configured, a DICOM node must be configured which describes the DICOM network properties of the printer. Such description contains an application entity title. Print SCP SOP must be selected. The list of network service names for DICOM printers is formed by the list of application entity titles.
- network printers: Before a network printer can be configured, a network printer node must be configured that describes the network properties of the printer. Such description contains a network service name. The list of network service names for network printers is formed by the list of configured network service names.

Edit configured media list
This button starts the Media list editor. Depending on the selected printer, you may select those film formats that are in actual use at the site. The disabled formats are not shown and therefore not selectable in the application.

NOTE

The media list should never be empty!
At least one medium must stay selected (“yellow light” = ON), since this will lead to problems in the application software.

A printer can support a large set of media. In a hospital only a small subset is actually used. Therefore in release 4 each medium has a “configured flag” and when this flag is set the medium is shown in the media lists presented to the user. The media list editor offers an interface to reduce the set of configured media to the set of media used in the hospital and to rename the media to a more natural name. The editor panel shows for each medium supported by the printers an entry with:

- the configured option
- the name

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- a technical description, specifying
  - medium size
  - medium type, if it is supported by the printer
  - color model, if the printer supports multiple models. This can be:
    + Color (RGB_BI, RGB_PI, BGR_BI, BGR_PI)
    + GREY_8
    + GREY_12
  - printer supports high resolution,
    At least one medium must be configured and the names must be unique.

Advanced printer settings
This button switches the printer configuration editor to the advanced printer configuration mode. The current panel is replaced by the advanced printer configuration panel.

Proceed
Save all changes made after the last activation of the printer configuration editor and return to the Peripheral Settings panel.

Cancel
Cancel all changes made after the last activation of the printer configuration editor.

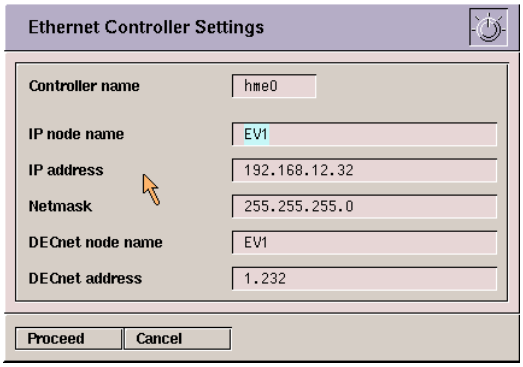
Click **Exit** in the Peripheral Settings panel after all settings have been entered and return to the EasyVision Configuration panel

5.6.6 Ethernet Controllers

In this panel the Ethernet controller(s) must be filled in. The items to be filled in are strongly dependent on the hardware environment of the cluster(s).

In case of a Server/Client configuration with an extra Ethernet controller for the client side, the Ethernet Controller of the Client side (on the Server) must be set first.

- Select **hme** for fast Ethernet controllers (10/100Mb) and click **New...** to add that controller.
- Select **qfe** for quad Ethernet controllers (10/100Mb) and click **New...** to add that controller.



Controller name
The name of the controller must be set.
In case of a Server/Client configuration with an extra Ethernet controller for the client side, the Ethernet Controller of the Client side (on the Server) must be set first.

IP node name
Internet protocol name for one of the Ethernet controllers (node). At least one IP address must be filled in per controller. **Example**: For the fast Ethernet controller (hme0) choose: **IP_node_name_fast**
This name can be the same as used for **EasyVision system name**. Do not use the “.” or “/” character within this name.

IP address
Internet protocol address for one of the Ethernet controllers (node). At least one IP address must be filled in per controller.

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If the network is solely used for different nodes then enter the number 192.0.0.n with n (IP local node-address) ranging from 1 to 254. This number must be unique for each system of the cluster. If a cluster is to be connected to a hospital-network (e.g. for using the PMSNet Import/Export facility), the hospital's network administrator should define the IP network address.

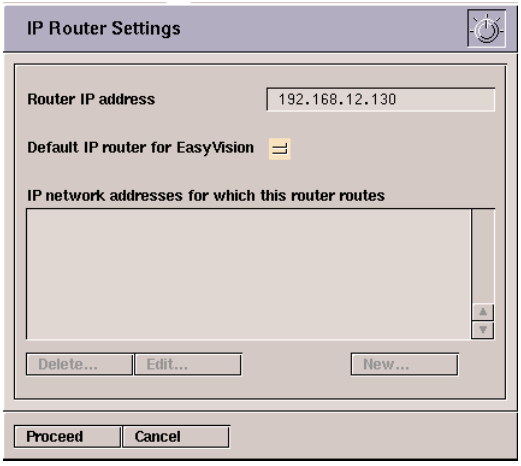
Netmask
Mask number for the network, determining which part of a complete IP address is its network part and which part is its hosts part. Keep the default value 255.255.255.0. To be changed only on request of the hospital network administrator.

Click **Proceed** after the settings are entered.

5.6.7 IP Router Settings

The **Router** entry field is in the lower half of the configuration panel underneath of the Controller entry field.
If a Router should be configured click to **New...** or highlight an existing router, **Edit...** if there is already one configured (to change/check) or **Delete...** to remove the router.

The following panel will appear (example):



Note:
- This is not needed for configuring remote systems EasyVision R4.
- Defining routing is done from the node (EasyVision) you are working on!
- On a Client configure the Server as default router

Router IP address
IP address of the router.
In case of a cluster fill in the server_fast address of the server. For clients the server "acts" as a router!

Default IP router for EV
If images must be transferred, the EasyVision will first look in the local cluster if the IP address can be found, if not and this option is enabled, the EasyVision will send the images to this IP address to be transferred further to other clusters. Since this router has 'knowledge' of the other clusters. If routers are available in clusters, there should be always one default router.

Default IP router for EV (disabled or OFF)
If the configured router is not the default router, you can configure one or more routers yourself.
Clicking OFF the yellow light will give you the possibility to select **New...**

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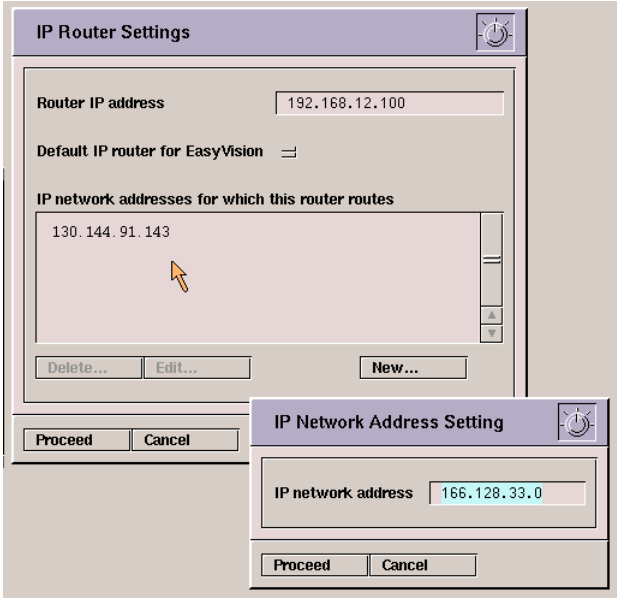

IP network address
Now you can enter an IP network address or netmask for which this router routes.
As a rule the netmask can be used ending with **0** (see example), meaning that this router routes for all nodes that meet this netmask.

When finished configuring the EasyVision itself. Click **Proceed** until the EasyVision main panel appears.

When ready at this point:
- continue with paragraph **Execute the configuration**.
  or
- start with next step, configuring modalities, other EasyVisions, DICOM nodes etc. according to chapter **Network Nodes configuration**.

5.7 Network Nodes configuration

Node types to configure :

EasyVision	EasyVisions RAD R4 can also be configured as DICOM node type if remote printing is not required.
Reader Node	PCR Readers AC500/5000
DICOM Node	All DICOM compatible systems All EasyVisions in another cluster that support DICOM All EasyVisions R4 if no remote printing required All DICOM Network Readers All DICOM Network Printers
Network Printer	All network printers that do not support DICOM
DSI	All DSIs.
EasyVision via PMSNet	All EasyVisions that do not support DICOM.
PMSNet Export Node	All systems that can receive PMSNet data (e.g. PMSNet Export Server).
PMSNet Import Node	All systems that can send PMSNet data to EasyVision.

Select the required node type and click **New...** for new node or click the associated line in the overview of configured nodes if one exists and click **Edit...**

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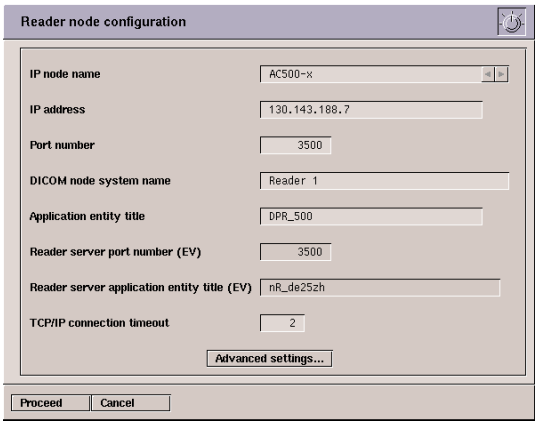
Existing nodes can be removed from the overview of configured nodes by clicking the associated line and clicking **Delete…**

5.7.1 Reader Node

From Level 2 on you **must** configure PCR Readers AC500 and AC5000 as **Reader Node**.

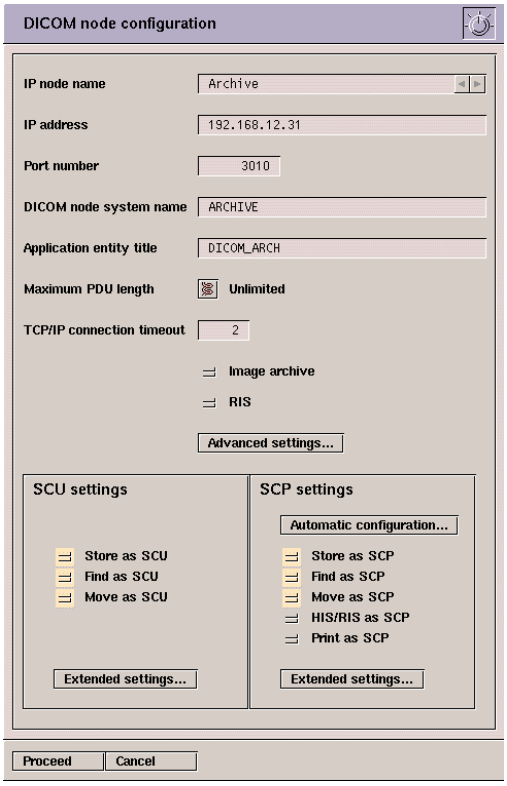


Port number and **Reader server port number (EV)** are fixed values**.**

Reader server Application Entity Title is an entry generated by the EV: **nR_<EV IP node name>**

Refer also to paragraph **Advanced settings**.

5.7.2 DICOM Node



This panel must be used if images have to be transferred between the EasyVision RAD R4.2V2 and a remote DICOM node or older EasyVision RAD releases supporting DICOM (e.g. ≥ R2.2L1). If the EasyVision is already configured on the remote DICOM node and that DICOM node is started up (in application mode) then **Automatic configuration** can be used.

IP node name

Enter the node name for the remote DICOM system from/to which the images are transferred.

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IP address
Enter the IP address of the remote DICOM system from/to which the images are transferred.

Port number
Enter the Portnumber of the remote DICOM system from/to which the images are transferred. (EasyVisions listen on port 3010).

Some port numbers	Port number
EasyVision RAD (DICOM)	3010
EasyVision via PMSNet	2020
PMSNet Export Node	1026
digitalDIAGNOST / THORAVISION	3010
Network Printer Command Port	5316
Network Printer Status Port	5317

DICOM node system name
Enter a unique name for the system from/to which the images are transferred; it will be visible within the application.

Application entity title
The EasyVision will use this “AE title” to address the remote DICOM node. Refer to the DICOM Conformance statement (Chapter “Configuration”) of the remote node for this name.

Maximum PDU length
Select the maximum length of the “Protocol Data Unit” which will be accepted by the remote DICOM . The EasyVision will not sent PDU’s with a greater length to this DICOM node. For DICOM transfer with GE-systems we recommend to select 65536 bytes.

TCP/IP connection time out.
Default 2 seconds. Only change this value when using ISDN and timeouts occur during image transfers. See for more information the service manual section : remote.

Image archive
If **Image Archive** is activated an image is marked as **exported** when it has been sent to this DICOM archive. Only to be switched ON if this DICOM node is a DICOM image archive.

RIS
Only to be switched ON if this DICOM node is a Radiology Information System.

Advanced settings...
See paragraph **Advanced Settings.**

Extended settings
The DICOM standard includes a broad selection of services and options. Therefore, configuring a DICOM node means not only filling in the Node name etc., but also selecting the right subset of services for the remote DICOM node. Fortunately, the EasyVision can select a correct set of services for you **automatically** if the remote DICOM node is accessible on the net as a DICOM node. Alternatively, you have to do the configuration **manually** with help of the “DICOM Conformance Statement” of the remote DICOM node. For each DICOM node such a bulletin should be available, describing the actual implementation of the DICOM functionality. It contains a chapter ‘Configuration’ with necessary information about the configuration parameters.

Auto Configure...
Clicking this button starts an automatic configuration process. The remote DICOM node must be in operation. All necessary DICOM settings are filled in automatically for that node.

If the remote DICOM node is not accessible then an error message will pop up and the function ‘Auto Configure..’ will not work. Then you have to fill the configuration items manually. This is done via the panels “SCU Settings” and “SCP Settings”. For manually configuring the DICOM services follow Appendix D of this Release Bulletin.

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If the “DICOM Conformance Statement” of the remote node is not available, then leave all default settings unchanged. The DICOM node will be fully operational. The only risk is that the DICOM node may wrongly be identified as import or export node within the Application. Before you can use **Auto Configure** you first have to complete the configuration procedure for this station and for the remote DICOM station.

NOTE

AE titles must be unique. An exception is made for MR scanners, because they have a fixed AE title. For EasyVisions the AE title must be unique!

Only the print SOP SCP must be switched ON for DICOM print.

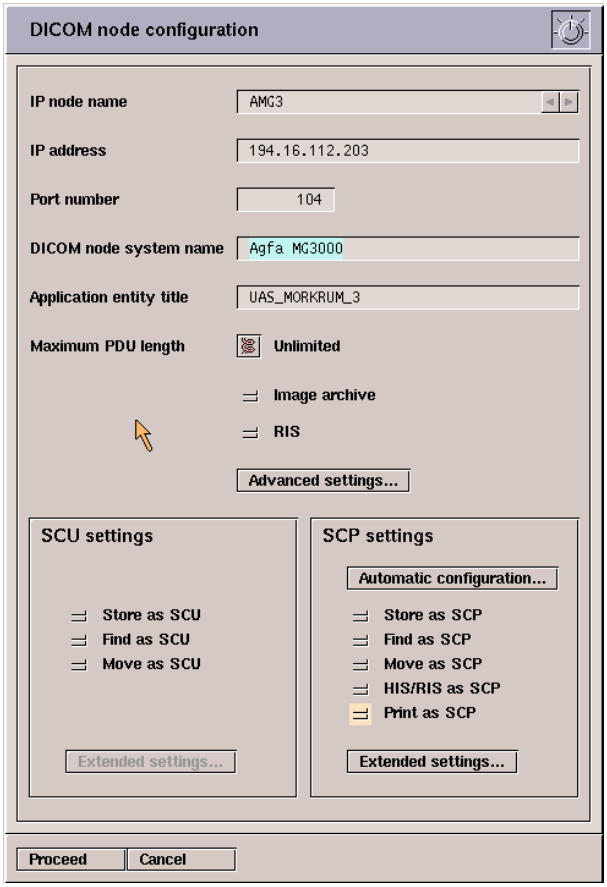
5.7.3 DICOM Printer

A DICOM printer is a network printer which is able to print out images sent by modalities or workstations according to the DICOM standard. However not necessarily every network printer is a DICOM printer. (There are network printers such as postscript printers or network PC printers). A main characteristic of a DICOM node (e.g. a DICOM printer) is that it communicates with other DICOM nodes by using an unique Application Entity Title (AET) together with the standard networking parameters such as IP node name and IP address.

Configuring a DICOM printer or imager for printing out images stored on an EasyVision RAD :

- a new DICOM node must first be configured for the Network DICOM printer.
- the printer must then be configured on the EasyVision using the peripheral settings.

1. Start the configuration tool.
2. Select DICOM node and click **New...**
3. The following panel will appear:



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Attention

Always configure a DICOM printer on that EasyVision RAD from which the print service will be used. Don't configure a DICOM printer as a remote printer via another EasyVision.
This will cause problems and confusions on all EasyVision nodes which use this printer.
As an example the parameters have been filled in for an Agfa MG3000 DryStar.

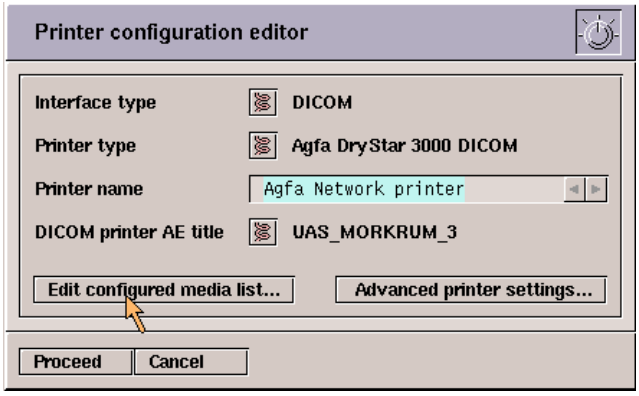
Application entity title
Must be unique in the network and must be provided by the supplier of the network printer.
Case sensitive!

SCU settings
Disable all highlighted SCU options

SCP settings
Disable all highlighted SCP options, and enable **Print as SCP**.

When finished click **Proceed**

Secondly:
1. Select the EasyVision configuration panel of the EasyVision for which the printer is to be configured.
2. Select **Peripheral Settings...**, and **New...** from **printers**
3. The following panel will appear:



Interface type
Must be set to DICOM

Printer type
Select the Network printer from the list.

Printer name
Up to you

DICOM printer AE title
Select the AE title

Edit configured media list...
See paragraph **Configuring printers (hardcopy units)**

Advanced printer settings...
For more information, see chapter **Advanced Printer Configuration**.

5.7.4 Network Printer

Don't mix up network printer with DICOM printer (*refer to chapter Configuring a DICOM printer*)
Select **Network Printer** with the right mouse button from the panel **Configured nodes** and click **New...**

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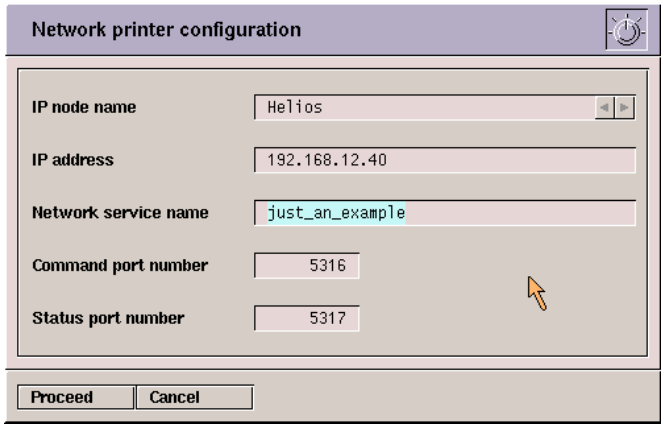


IP node name
Must be the same as the node name of the network printer to which the images will be exported to.

IP address
Must be the same as the IP address of the network printer to which the images will be exported to.

Network service name
An identifying name. This is not a DICOM connection or AE-title, the name is just an identifier and can be freely chosen.

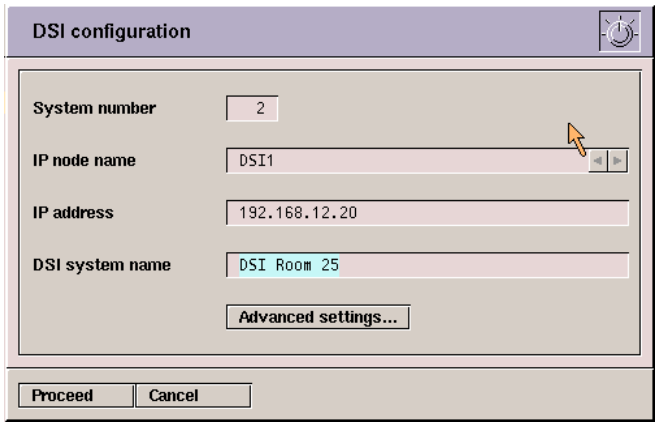
Command port number
The portnumber of the printer to which commands will to sent. This portnumber must be provided by the supplier of the Network printer.

Status port number
The portnumber of the printer from which printer status information will be obtained. This portnumber must be provided by the supplier of the network printer.

NOTE

*When all nodes are configured the configuration must be executed, according to paragraph "**Execute the configuration**"*

5.7.5 DSI



System number
Sequential identification number within the cluster for the involved system.

IP node name
Enter a unique name for the modality-system.

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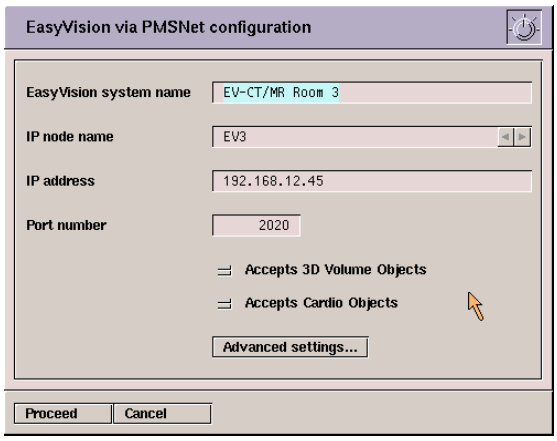
IP address
This number must be made equal to the IP address of the system in question.

DSI system name
Can be chosen freely, will appear within the Application

Advanced settings...
The default values will be correct for most cases. See paragraph **Advanced Settings.**

5.7.6 EasyVision via PMSNet



When to use this panel:
To establish a connection with:
- an EasyVision of an other type and release which does not support DICOM (e.g. older releases from R/F and CT/MR, Rad).
- an EasyGuide Neuro workstation.

Transfer of images from an EasyVision via PMSNet to the EasyVision R4.1. is only possible if this panel is completed on the other station as well.

EasyVision system name
Enter a unique name within the cluster, it will be visible within the application.

IP node name
Enter a unique node name for the EasyVision from/to which the images are transferred.

IP address
Enter the IP address of the EasyVision workstation from/to which the images are transferred.

Port number
Enter the Portnumber of the system from/to which the images are transferred.
See table.

EasyVision type and release	Port number
EV-CT/MR ≤ R1.2 level x	1026
EV-CT/MR ≥ R2.1 level x	2020
EV- R/F ≤ R1.2 level x	1026
EV- R/F ≥ R2.2 level x	2020
EV-X-Ray ≥ R3.1 level x	2020
EasyReview R1.2 level x	2020
EV-Rad ≥ R 2.1	2020

Advanced settings
The default values will be correct for most cases. See paragraph **Advanced Settings.**

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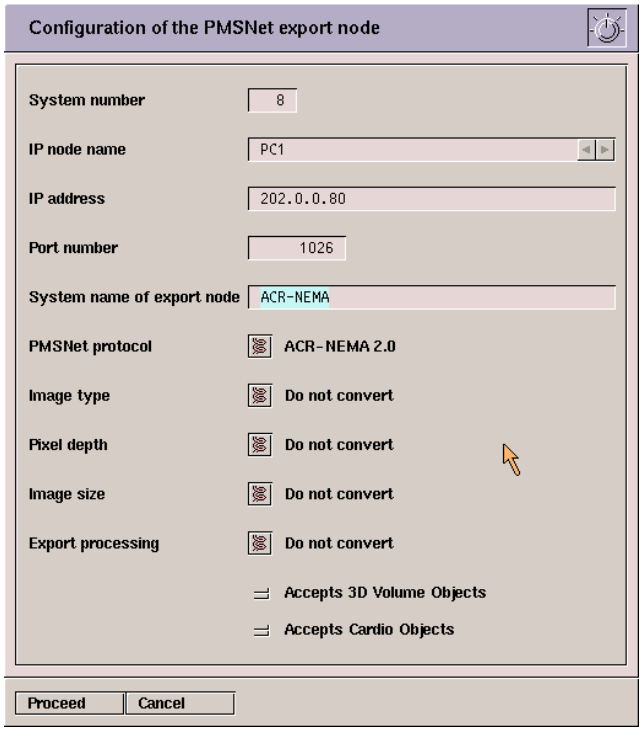
5.7.7 PMSNet Export Node



This panel will be used to configure the EasyVision to a PMSNet Export node (e.g. a PC, Macintosh or SUN-system running with the PMSNet protocol)

System number
Sequential identification number for the system.

IP node name
Must be equal to the Node Name of the system to which the images are exported.

IP address
The hospital's network administrator should issue the network address

Port number
Enter the Portnumber of the system to which the images are exported. If the PMSNet ExportServer software is running on the export node then refer to the User Guide of that program.

System name of export node
Can be chosen freely, will be used during normal operation.

PMSNet protocol
Protocol selection can be made between ACR-NEMA 2.0 and SPI-P release 2

Image type
Select one of the options if images have to send from the EasyVision database to an export node as secondary captured images ("frozen" images). These are pixel maps on which no image manipulations are possible anymore (also called "photo" images). You can send them with (include) or without (exclude) graphics. DCI and VISUB images are to be recognized as XA images.

Pixel depth
Number of bits allocated for each pixel sample. Each sample shall have the same number of bits allocated. 8 or 12 bits.

Image size
Possibility to convert images to an export node with a fixed different pixel format. Dependent on what the export node can handle.

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Export processing
Possibility to convert (or not) raw data on export from the database from the Easy-Vision to an export node.

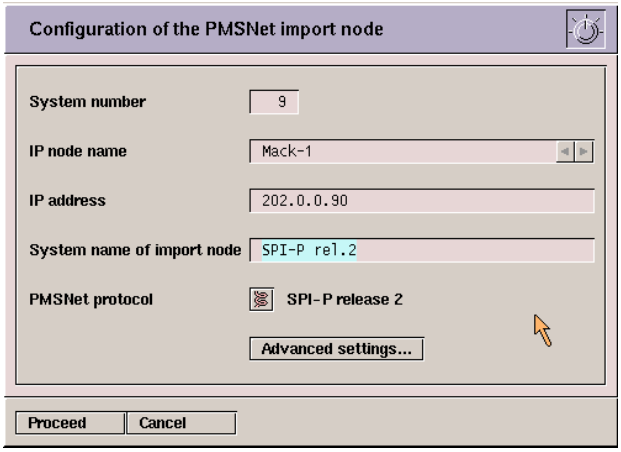
Accepts 3D Volume Objects
Applicable to the transfer from EasyVision to a remote PMSNet node or a Gyrocom station. 3D Volume objects will be sent by the EasyVision if selected.

Accepts Cardio Objects
Applicable to the transfer from EasyVision to a remote PMSNet node. Cardio objects will be sent by the EasyVision if selected.

NOTE

Selection of the available options has to be done in agreement with the user of the export node, or with the hospital's network administrator. Else select the default settings.

5.7.8 PMSNet Import Node



System Number
Sequential identification number for the system.

IP node name
Must be equal to the Node Name of the system from which the images are imported.

IP address
Must be equal to the Node Name of the system from which the images are imported.

System name of import node
Can be freely chosen; will be used during Customizing and within the application program.

PMSNet protocol
Selection of the right protocol has to be done in agreement with the owner of the import node, or with the network administrator; else select the default setting. Selection can be made between SPI-P release 2 and ACR-NEMA 2.0

Advanced settings...
The default values will be correct for most cases. See paragraph **Advanced Settings.**

Selection of the available settings has to be done in agreement with the user of the export node, or with the hospital's network administrator. Else select the default settings.

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5.7.8.1 THORAVISION

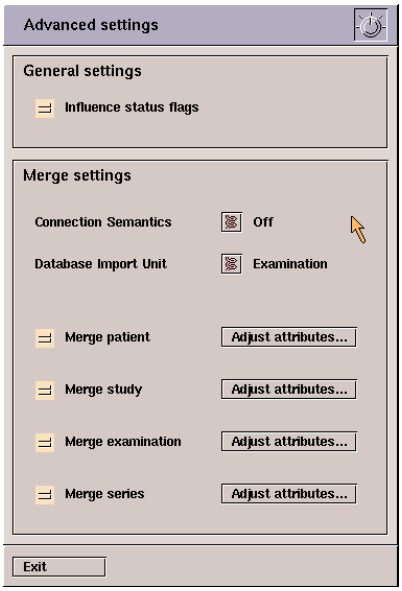
When **THORAVISION** is included in the cluster you may use the PMSNet protocol for transferring images.

If you are using PMSNet there are different port numbers for THORAVISION according the functionality:

Function	EasyVision Port number
Like received	2020
Store and Print	2021
Store and Archive	2022
Store, Print and Archive	2023
Store and Export	2028

Note: This functionality has been imported from R 2.3 but was never tested within R4.2. but it should work without any problem.

5.7.9 Advanced settings



5.7.9.1 General settings

Influence status flags
When this flag is set the states (**P**rinted,**A**rchived,**E**xpired) are reset when a new image is imported for an existing patient. This flag is set by default. When this flag is not set the states are kept and not reset.

5.7.9.2 Merge settings

The merge settings influence the merge behavior of the database.

Connection semantics :
On every internal connection this flag indicates how to merge the received set in this connection (Patient, Study or Examination based).

Database import unit :
The unit size which will be visible in the database when importing. This can be based on Patient, study or examination) For example: Examination; signifies that the received set will be merged as a new examination in an existing set in the database.

The Merge patient, Merge study , Merge examination, Merge series:

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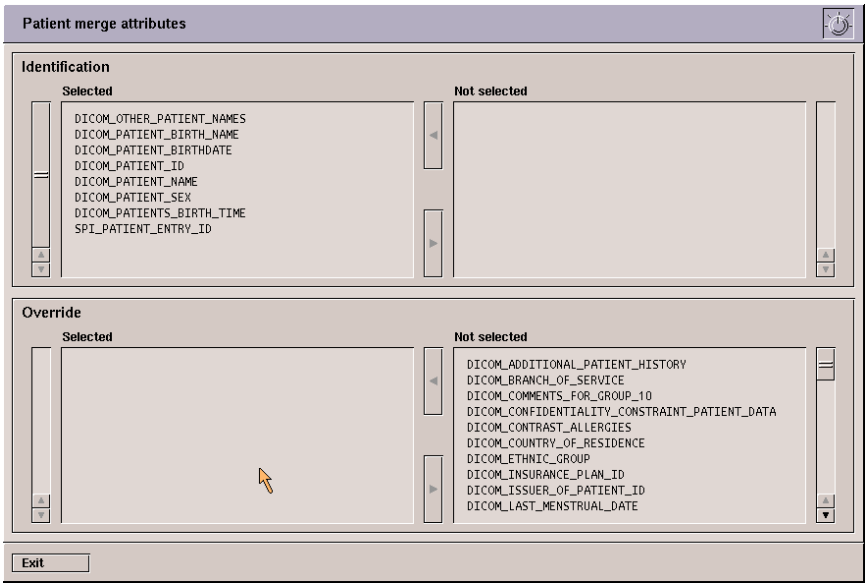
Merge Patient
For example, Merge Patient is enabled.

After clicking **Adjust attributes...** the following panel is displayed



If patients with the same name must be merged on import (by clicking to Merge Patient in the Advanced settings panel), one can select:
- the Identification criteria on which a patient name should merge (default as shown in the panel above).
- what image-attributes should override the attributes from the existing images (default = none, as in the panel above).

The same sort of selections can be made for:
- Merge study
- Merge examinations
- Merge series

5.8 Removing corrupted Configuration files

The following instruction is used to delete corrupted configuration data. Handle with care!

- Go to the Startup Menu
- Select **`3. Go to Service Menu`**
- Select **`2. SunOS Menu`**
- Select **`2. SunOS`**
- At the prompt enter: **`/easy/service/removeConfigFiles`**
- `Enter:` **`exit`**
- Select option **0** twice to logout

Proceed by entering the configuration from scratch.

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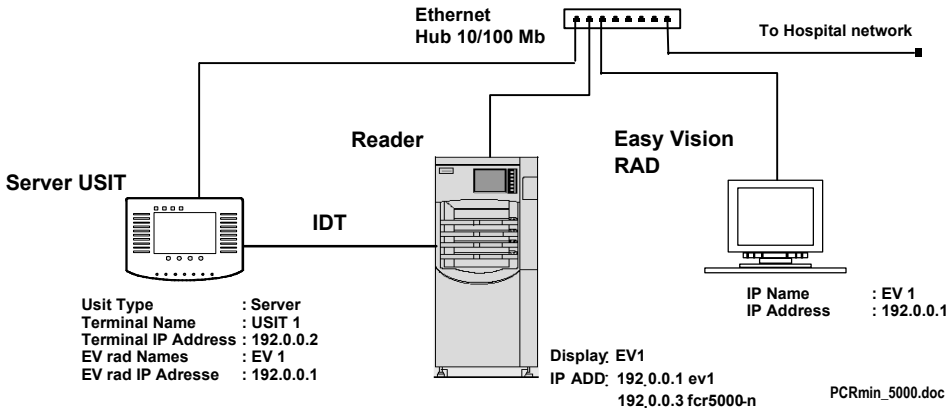
6 CONFIGURING A PCR STAND-ALONE SYSTEM



For configuring a PCR stand-alone system the following data are needed:

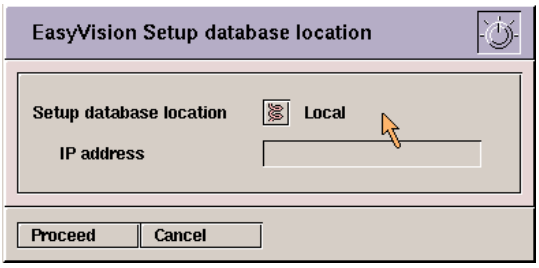
Reader

Host name:	fpr500-n
Application Entity Title:	DPR_500
Port number	3500
Service name	Storage

EasyVision

Node type	Reader node
Application Entity Title	DPR_500
port number	3500

If the EasyVision is an initial factory delivery, many configuration items of the EasyVision itself will be correct. Check it according to the following pages. If the software has been (re)loaded, e.g. due to a system disk replacement, a backup panel ***may*** pop-up, just after starting “Configuration”.



Click **Proceed** and check the configuration items. If an empty configuration panel pops up, all steps must be done according and perform the following steps:

- Start Configuration
- Configure Stand-alone EasyVision
- Configure PCR Reader
- Configure Printer
- Execute configuration
- Continue with customization

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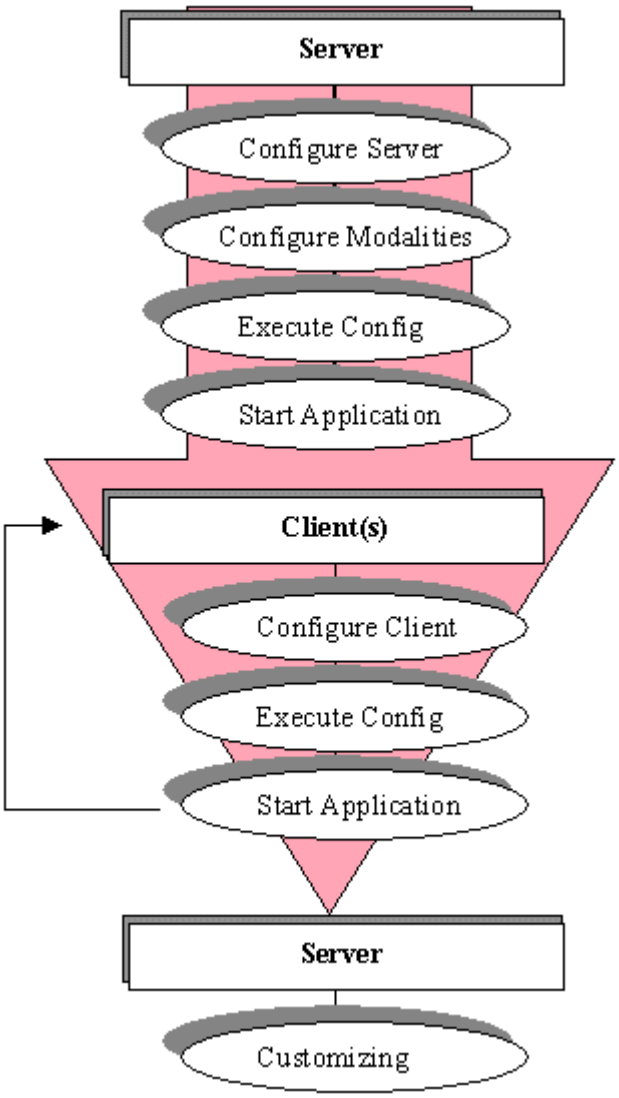
7 CONFIGURING A SERVER/CLIENT CLUSTER

Note

On a server: Always configure the Client side (controller 1) first!!!!



The advised procedure is as follows::

1. (Re)Configure the Server itself after starting the configuration tool.
2. Configure all modalities/nodes on the Server, according to chapter 7 “Network Nodes configuration “.
3. Execute config on the Server and start the application on the Server.
4. Go to the first Client.
5. (Re)Configure Client1.
6. Execute configuration and start the application on Client1.
   (Repeat step 4 to 6 for all Clients being part of this cluster.)

In case of a Client system the IP address has to be changed to connect to the Setup database on the Server.

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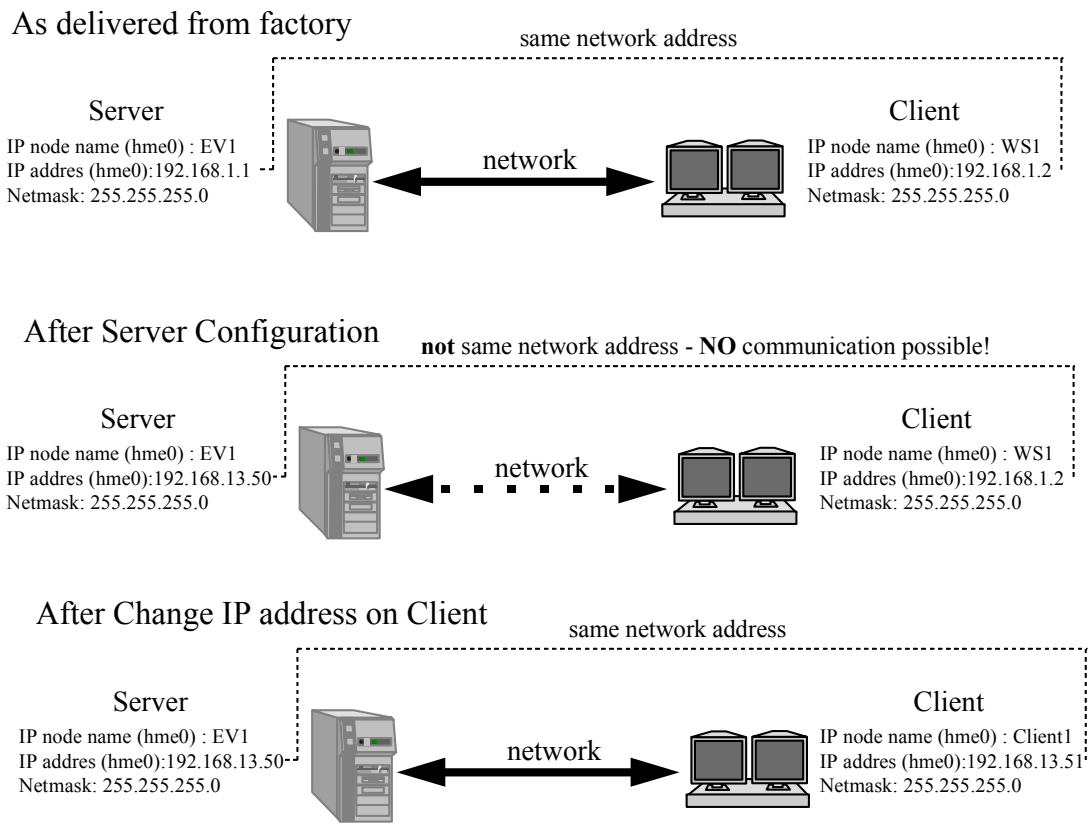

The next screen appears:

```
This option changes the IP address for 1 ethernet interface.
It should be used on Clients with incorrect IP addresses to allow them to
contact the Server (please check which interface must be changed).

If the IP address has been changed the system will and the system MUST be
configured.

Do you want to continue    (Y|N) ?:
```

After entering `Y`, the following entries must be done:

```
Enter hostname :
Enter IP address :
Enter netmask [255.255.255.0] :
```

The Ethernet controller is displayed by the system and the next message appears on the screen.

```
This system will reboot itself if this data is accepted

Are these settings correct? [y/n]
```

Type **`Y`** to continue

The system performs a reboot. Now the IP address is changed and the connection with the Setup database on the Server can be established.

Start Configuration

```
Starting configuration
Password:   password
Starting configuration takes about 30 seconds.
```


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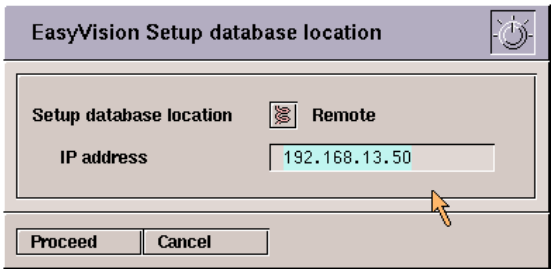
EasyVision Setup Database location



REMARK
After starting up the Configuration for the first time (after a software re-installation) **or** if the Server is down, the following panel appears. Fill in the IP address of the Server and click **Proceed.**

From the Setup database the Cluster data and configured nodes are loaded.

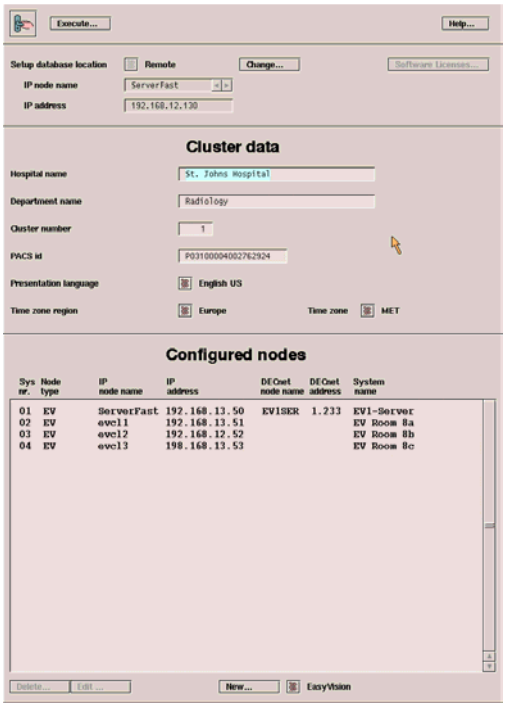
How to change IP address after an Installation

After a new Installation the next panel appears:

```
Config Menu:

What do you want to do?:
   1. Start Configuration
   2. Reinstall Application
   3. Login as root

0. Shutdown

Enter the number of your choice: 3
```

In this case the IP address of the Client can't be changed. If you still want to change the Clients IP address:

1. Login as root
2. At the Unix prompt enter: **`/startup/setupNetwork`**



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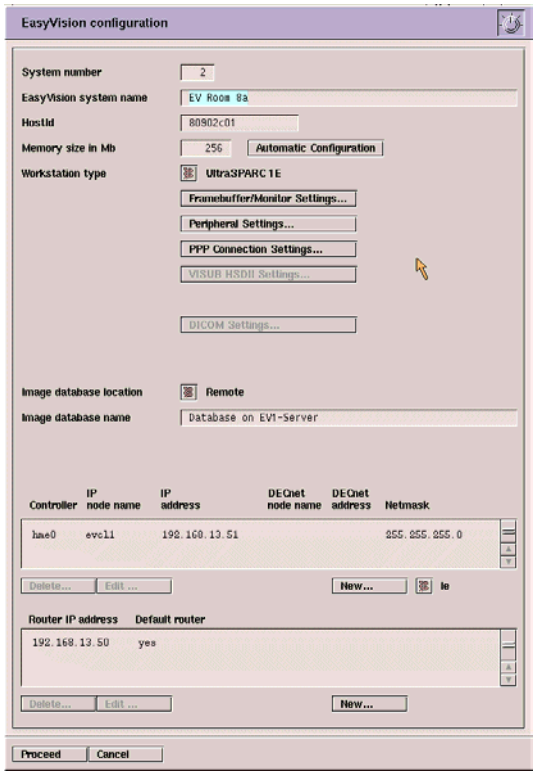
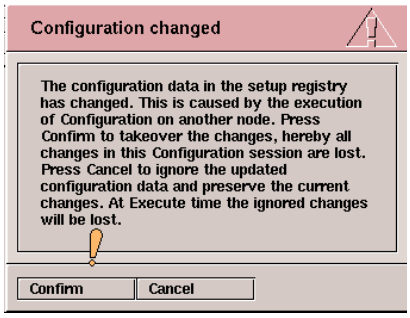
Remark: Setup database location must be set to **remote**!

Click **New...** for new EasyVision node or if one exists highlight it and click **Edit...**



After all configuration items are filled in, click **Proceed** then **Execute** the configuration:

If one of the other Clients or the Server is still in Configuration mode and the configuration on the current Client is executed, a message appears on screen.


Configuration changed
The configuration data in the setup registry has changed. This is caused by the execution of Configuration on another node. Press Confirm to takeover the changes, hereby all changes in this Configuration session are lost. Press Cancel to ignore the updated configuration data and preserve the current changes. At Execute time the ignored changes will be lost.
Confirm
Cancel

Click **Confirm** and start Application on that particular Client or Server to avoid this message.
If the Server AE Title has been changed for what ever reason:

1. Exit Application on **every** Client.
2. Execute Configuration on **every** Client
3. Restart Application on **every** Client

NOTE

After configuring all Clients (and execute and start application) **EXECUTE** the Server configuration again

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8 CUSTOMIZING

IMPORTANT:

In case of a new installation and if you do not want to customize now, still a default format must be selected (see the following procedure).

From the start-up menu select **`2. Start Customizing.`** After about 30 seconds the customizing panel will appear on the screen.

NOTE

If no "print protocols are visible, click to "restore PMS settings" followed by "Save". The standard print protocols will become visible.

Actions

- Select an "acquisition system" from the "automatic printing" panel
- Select an "application package" from the "print protocols" panel
- Select a "print format" from the list (highlight it)
- Click to "default" in the "automatic printing" panel
- Repeat these steps for all available application packages
- Repeat these steps for all available acquisition systems

If an application specialist is available, customizing can be done in consultation with the application specialist and/or with the customer.

The items to customize are:

- The protection mechanism of the image-database on this workstation.
- Automatic archiving
- Destinations for remote functions
- User permissions.
- Default application package per workstation.
- Automatic routing of images from the modalities to Printer, Store or Export-node.
- Automatic reconstruction
- Print protocols
- Automatic printing

NOTE

When finished make a backup according to chapter Backup/ Restore system files.

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9 UPGRADING TO RELEASE 4.2V2 L2

9.1 Upgrading Release 2.x to 4.2V2 L2

- An upgrade from EasyVision RAD Rel. 2.x to 4.2 is not possible since R4.2 is designed to only run on Sun Ultra 5/10 /60 hardware. The hardware of a SparcStation 5 is not supported.
- The old configuration file (config.cfg) and the printer calibration file cannot be used anymore in R4.2V2 L2. Save it on your service PC or a network system for information only.

9.1.1 Updating Level 1 to Level 2

Level 2 has been changed in both the operating system and the application software. Therefore a complete new installation is mandatory. The image database with the images from Level 2 can be kept. If this applies don't partition the image disk(s).

Survey of Actions

- Save all configuration files, startup files, customizing files etc. with the appropriate procedures on floppy or on an external computer such as service PC
- Shutdown the EasyVision RAD
- Boot from CD-ROM
- Partition the system disk and if applicable the image disk(s)
- Install the Operating System
- Install Application Software
- The files /dbadmin/config.cfg, <HostID>.cus, license.dat, <hostname>.cal should be present. They will be used by the new software.
- Execute the configuration; keep existing image database if applicable
- Reload the **Processing Presets** and the **Print Protocols** with the appropriate procedures to the system.

Important

*Upgrading an EasyVision RAD system with R 4.2 L1 to 4.2 L2 it is mandatory to reconfigure all DICOM readers (AC500/5000) from the node type **DICOM node** to **Reader node.***

Make a backup of:

- **Configuration file**: /easydata/config.cfg (usually the system keeps the file automatically).
- **Customization file**: /easydata/<HostID>.cus
- **License file**: /easydata/license.dat
- **Processing presets: /**easydata**/** protocol.dat
- **Print protocols**

In case of a Stand-Alone system continue with chapter **Configuring a PCR Stand-Alone system**

In case of a Server/Client cluster repeat the software installation for all Clients and continue with chapter **Configuring a Server/Client cluster**.

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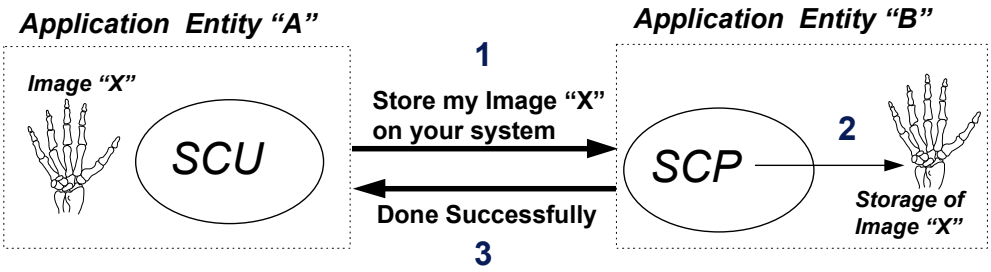
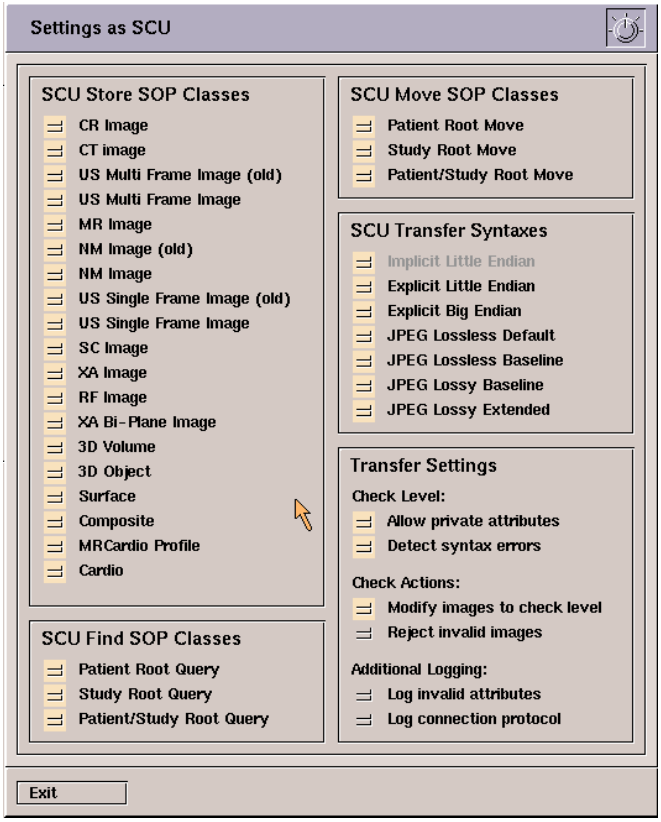
10 EXTENDED DICOM SETTINGS

The EasyVision DICOM capabilities are specified by the “DICOM Conformance statement” bulletin (4522 220 84552). There is also a document available “How to read a DICOM Conformance Statement” (4522 983 67151).

SCU (Service Class User) = Client
SCP (Service Class Provider) = Server





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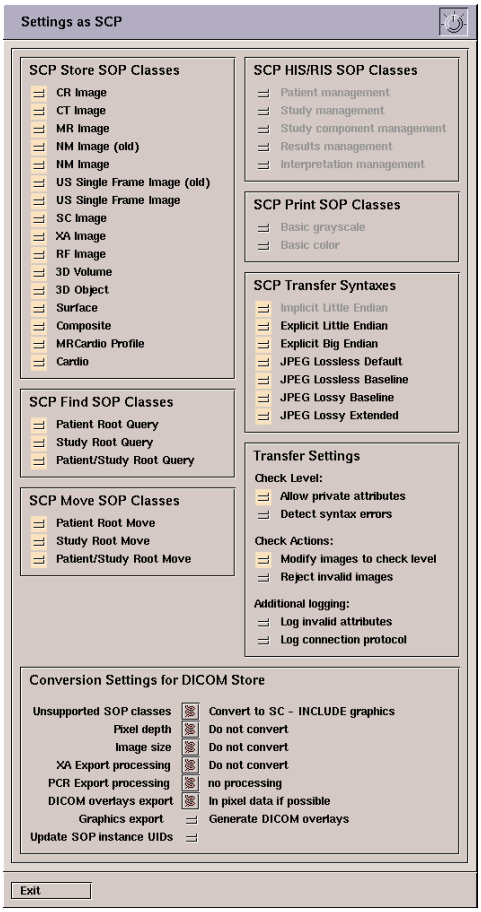

10.1 Conversion Settings for DICOM Store

At the bottom of the selection panel **Settings as SCP** a number of selections is available in the box **Conversion Settings for DICOM Store**.

For PCR systems the option **PCR Export processing** might be the most important setting:

- **no processing:** Images are exported as “raw” images
- **Enhancement:** Images are transmitted with DRR/UM enhancement enclosed, no LUT applied
- **Enhancement + UM LUT:** The special UM-LUT (A-O) is applied
- **Enhancement + UM/DRR LUT:** Images are transmitted containing the UM LUT and DRR LUT

Unsupported SOP classes

- **Do not convert**
- **Convert to SC –EXCLUDE graphics**
- **Convert to SC – INCLUDE Graphics** Recommended

Pixel Depth

- **Do not convert** Recommended
- **Convert to 8 bits**
- **Convert to 12 bits** not for diagnosis
- **Convert to 8 to 12 bits** JPEG involving losses; for viewing only

10.2 Application Entity

A major issue in networked distributed applications is how applications can contact each other. Arrangements have to be made to address the counterpart and agree about various topics before SOP instances can be exchanged. In DICOM Network partners recognize each other via Application Entities. An

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Application Entity is that part of a process that deals with the communication. It contains the Service User of the process, containing functions to setup connections and transfer the information. An Application Entity has a name (Application Title) that has to be used when setting up the communication.

Example
The EasyVision will use this “AE title” to address the remote DICOM node. Refer to the DICOM Conformance statement bulletin of the remote node for this name.

10.3 Presentation Address

Application Titles are symbolic names for the processes involved in the communication. In a real network a network address has to be provided. This is called the Presentation Address and points to the Application Entity addressed.
The format of the Presentation Address depends on the network protocol used. DICOM networks are in most cases realized using the TCP/IP protocol stack.

Example
In EasyVision the DICOM Association between the Application entities is mapped to a TCP connection. The Presentation Address is mapped to a TCP port number, combined with the IP Number or Host name.

10.4 Port Numbers

Many different protocols (FTP, HTTP, Telnet, DICOM) can use TCP at any time. These applications are identified by using so-called **Port Numbers**. The combination of TCP Port Number and **IP number** is called the **Socket Address**.
A TCP connection is defined by the combination of the local Socket Address and the remote Socket Address. By keeping the IP numbers network wide unique and the TCP port number unique inside a system, each TCP connection is uniquely identified by the combination. The management of connections is done by a facility called the Socket Interface which provides functions to setup connections, transfer byte streams, etc.
The TCP port of the partner called during a connection initialization must be known. This can be either an agreed port number between two applications. The EasyVision for instance listens to port number 3010.

10.5 Query/Retrieve SOP Classes

Three standard Query/Retrieve Information Models are defined for EasyVision. Each Query/Retrieve Information Model is associated with a number of SOP Classes. The following three hierarchical Query/Retrieve Information Models are defined:

- Patient Root
- Study Root
- Patient/Study Only

Patient Root
The Patient Root Query/Retrieve Information Model is based upon a four level hierarchy:

- Patient
- Study
- Series
- Image

The **Patient** level contains the identification and demographic information about the patient to which a study belongs. Because more than one study of a patient can exist, the patient level is the highest level (when all the information collected for a single patient is taken in account).

A **Study** is the result of a request for a certain type of examination. All the activities in a radiology department centre on the correct handling of the study. At study level identification information is kept and it can also contain references to information related to the same study in an administration system.

Below the study level all the **Series** of images are collected. The Series level identifies the modality type creating the images; the date/time when the series was made, and details about the examination type and equipment used.

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The lowest level is the **Image** level. Each image contains acquisition and positioning information as well as the image data itself. Depending on the type of modality, the image level contains data for one image (single), two images (biplane system) or a collection of images taken in a single gathering of image data in a relative short period of time (multi-frame images).
The use of multi-frame images saves duplication of information at the higher levels, but is only possible when the relationship between the frames can be described in a simple manner. For example, the increments in the movements of the system and time are equal for all the single frames.

Study Root
The Study Root Query/Retrieve model is identical to the Patient Root Query/Retrieve Model except the top level is the study level. Attributes of patients are considered to be Attributes of studies.

Patient/Study Only
The Patient/Study Only Query/Retrieve model is identical to the Patient Root except the series and image levels are not supported.

NOTE

Even though this model does not include the image level, images may be retrieved at the patient and study level (i.e., retrieve all images for a Patient or Study).

10.6 Transfer Syntax

The Transfer Syntax is a set of encoding rules able to unambiguously represent one or more Abstract Syntax's. In particular, it allows communicating Application Entities to negotiate common encoding techniques they both support (e.g., byte ordering, compression, etc.).
A Transfer Syntax is an attribute of a Presentation Context, one or more of which are negotiated at the establishment of an Association between DICOM Application Entities.

Little Endian
In a binary number consisting of multiple bytes (e.g. a 32-bit unsigned integer value, the Group Number, the Element Number, etc.), the least significant byte shall be encoded first; with the remaining bytes encoded in increasing order of significance.
In a character string consisting of multiple 8-bit single byte codes, the characters will be encoded in the order of occurrence in the string (left to right).

Implicit:
DICOM defines default Transfer Syntax, the DICOM Implicit VR Little Endian Transfer Syntax, that shall be supported by every conformant DICOM Implementation.

Explicit:
This Transfer Syntax applies to the encoding of the entire DICOM Data Set. This implies that when a DICOM Data Set is being encoded with the DICOM Little Endian Transfer Syntax some requirements (according the DICOM standard) shall be met.

Big Endian
In a binary number consisting of multiple bytes, the most significant byte shall be encoded first; with the remaining bytes encoded in decreasing order of significance.
In a character string consisting of multiple 8-bit single byte codes, the characters will be encoded in the order of occurrence in the string (left to right).

JPEG
DICOM provides a mechanism for supporting the use of JPEG Image Compression through the Encapsulated Format

NOTE

The context where the usage of lossy compression of medical images is clinically acceptable is beyond the scope of the DICOM Standard. The policies associated with the selection of appropriate compression parameters (e.g. compression ratio) for JPEG lossy compression is also beyond the scope of this standard.

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10.7 Transfer Settings

These settings are applicable to all transfers, import or export, which are initiated by this DICOM node as SCU. We strongly advise to keep the default settings unchanged.

Check Level: Two checks may be enabled:

- **Allow Private attributes:** if this setting is not selected, all NON-DICOM attributes will be removed from the images.
- **Detect Syntax errors:** check the values of all attributes against the DICOM specification.

As a result of these checks the following actions and / or logging can be selected:

Check Actions: the response on a failed check can be chosen:

- **Modify image:** try to repair any missing or superfluous attributes or syntax errors (e.g., construct DICOM attributes from PMSNet attributes).
- **Reject invalid images:** Reject images with missing or superfluous DICOM attributes or syntax errors. The transfer is stopped after the rejected image, so the remaining images of the job are not transferred.

These actions can be combined, which means that if the modification fails the image will be rejected.

Additional Logging
Logging of errors is always done. When setting up communication with a DICOM node for the first time, set the following two logging options to “on”; after communication is established you may switch them to “off”:

- **Log invalid attributes:** log all missing or superfluous DICOM attributes or syntax errors to the log file: /var/adm/cdslog/networkServer_network_<hostname>
- **Log connection protocol:** all logging with respect to the DICOM function “Query” is written to the logfile: /var/adm/cdslog/networkServer_network_<hostname>

Exception: all logging with respect to the DICOM function “Query” is written to the logfile: **/var/adm/cdslog/uiDataHandling** logfile.

Examples of DICOM settings and the results.

Allow private attributes	Modify images to check level	Reject invalid images	Result
off	on	on	Stop transfer from this node at an image with a invalid attribute which cannot be repaired and filter non-DICOM attributes.
on	on	on	Stop transfer from this node at an image with a invalid attribute which cannot be repaired.
off	on	off	Transfer from this node is done for all images (which may also include private attributes).

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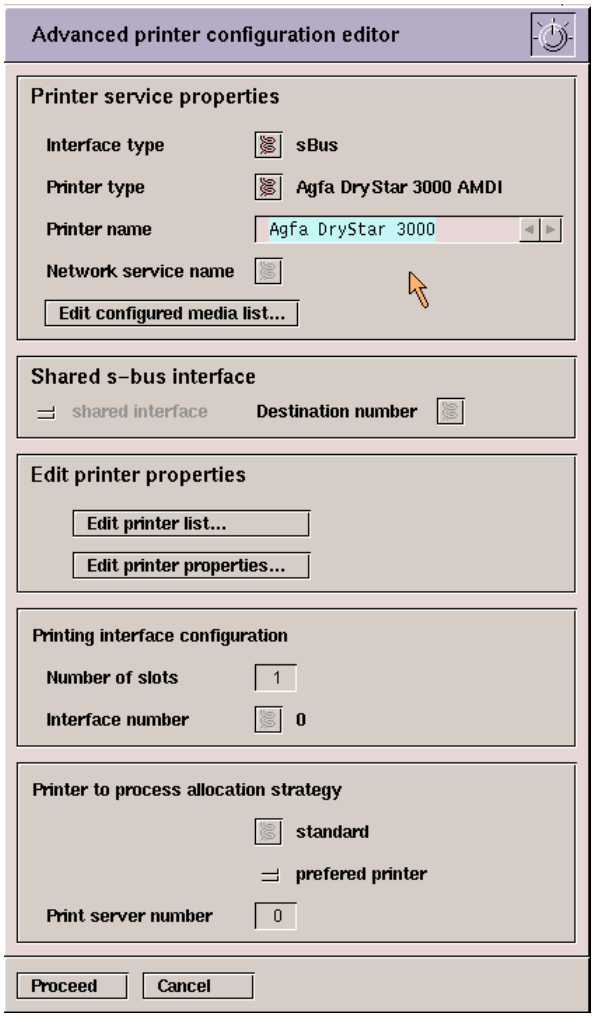
11 ADVANCED PRINTER CONFIGURATION



The advanced printer configuration is an extension of the standard printer configuration editor. It extends the standard printer configuration editor with the following options:

Shared SBus interface
In this release this is an extension that is only used for 3M-MIM in case this MIM two printers are connected supporting the same medium size. In that case each printer must be configured separately (the user sees two printers) with the shared S-bus interface option on. The destination number of each printer must be set to the printer number that is used for that printer in the MIM.

Edit printer properties
This extension offers two buttons:

- Edit printer list: starts the printer list editor
- Edit printer properties: to start the printer property editor.

Printing interface configuration
This extension is only for S-bus and SCSI printers. It shows the number of slots and the interface number for the selected interface type. For the current release the number of slots is fixed to one.

Printer to process allocation strategy
This extension shows the mapping of the print services to UNIX processes. For this release only the standard mapping is available. The standard mapping maps all non-preferred printers to process 0 and all preferred printers to process 1. The preferred option is part of this.

Preferred printer

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If this selection is activated the system assignes a separate hcServer job to that particular printer. It has the effect that hanging other printers doesn't have any effect on the preferred printer.

Printer list editor
The printer list editor offers an interface to load and store in ASCII-files. The intention of these files is that they can be used in communication with PCR development in Hamburg in case of problems. The editor panel offers a field to enter a file name (full path name) and the following buttons:
1. save printer settings: save the printer settings of the currently selected printer.
2. load printer settings: load the printer settings from file for the currently selected printer.
3. load printer list: load the list of supported printers from file.
4. reset printer list: replace the list of supported printers with the list that was part of the release. This will act as a reset of the list of supported printers.

Printer property editor
This panel shows detailed settings of the printer configuration.
1. Manufacturer
2. Model
3. Protocol
4. interface type
5. Device node name: the UNIX device node name
6. network service name
7. media list

In the list of media a medium can be selected. The details of the selected medium are shown in the lower part of the panel. The selected medium can be edited by editing the fields. For printing to file the selected medium can:
- copy edit: a copy of the selected medium is made and selected for editing.
- delete: the selected medium id deleted.

The fields of the selected medium are:
1. medium name: editable.
2. medium size name: editable for printing to file.
3. medium type name: editable for printing to file.
4. medium size X and Y in pixels: editable for printing to file.
5. resolution: editable for printing to file.
6. color model.
7. configured medium option: editable.
8. border margins in pixels of both orientations: editable.
9. to file options .
   - encoding type: editable for printing to file.
   - quality: editable for printing to file.
10. DICOM parameters (see DICOM definitions).
    - Image format.
    - Film orientation.
    - Film destination.
    - Trim option.
    - Configuration.
    - Magnification.
    - Max density.

The intention of the panel is to show the details in case of problems (This panel is subject to the non-documented feature: development privilege).

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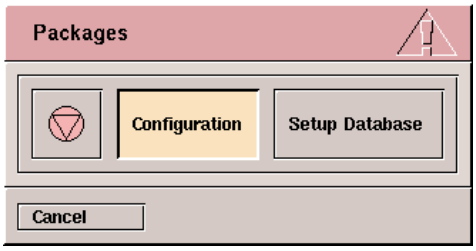
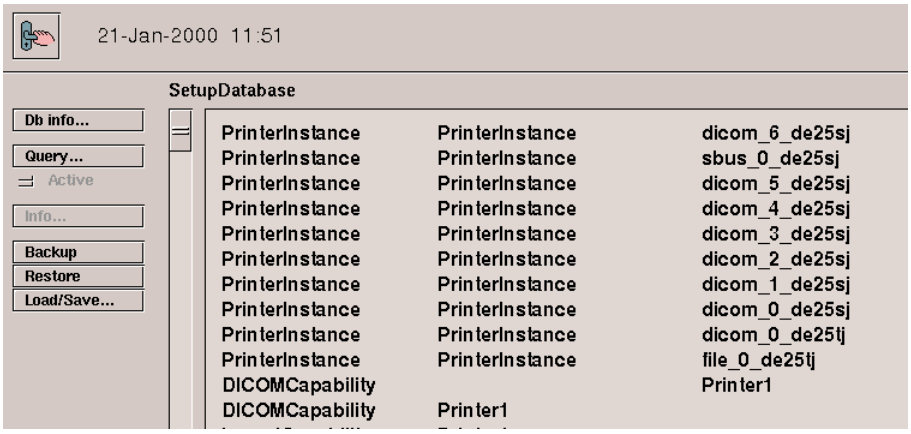
12 ADDING A NEW PRINTER TO THE PRINTER LIST

If in the Configuration tool a certain printer is not listed among the configurable printers, there is a possibility to add a printer to that list. To achieve that a textfile containing the printer properties a so-called **PrinterPrototype.txt** file must be available. This file will be provided by the PCR development group in Hamburg.

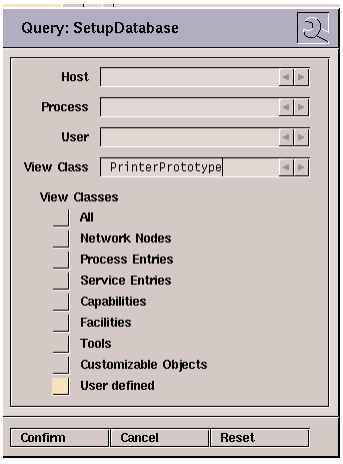
- Copy this prototype file to the directory **/dbadmin**
- From the Startup Menu select **4 Go to Installation / Configuration Menu**
- Select **2 Start Configuration**
- In the configuration screen click on the **Door handle icon**
- In the window **Packages** click on **Setup Database**



- The screen **SetupDatabase** will be displayed.



- click **Query**.



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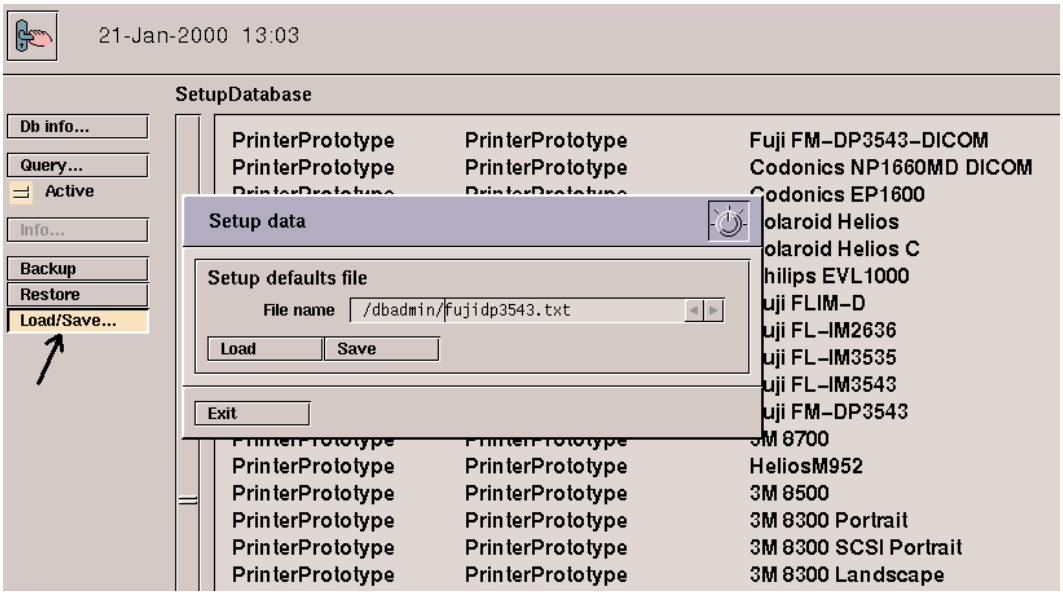
In the Setup Database Window perform the following steps:

- Under **View Classes** activate the box **User defined** and in the input line **View Class** enter **PrinterPrototype** and click **Confirm**. This is done to limit the number of entries displayed in the list to **PrinterPrototype** files**.**
- Now a list of printerprototype files will be displayed.
- To add the new file to the list of PrinterPrototype files click **Load/Save...** The **Setup data** entry window will pop up.



- In the **Setup defaults file** enter the path and the file name of the new PrinterPrototype file. (example: /dbadmin/fujidp3543.txt)
- Click **Load** (Only activated if the file exists in the directory **/dbadmin**). That file will then become part of the PrinterPrototype file list.

Specific attributes in the file effect this file to be stored in the right group: Sbus/PCI, SCSI, DICOM and that the printers name is listed and selectable in the list of configurable printers.

Now the printer can be configured in the standard way.

Note

The above described procedure has to be carried out every time the application software has been (re)installed.

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13 BACKUP AND RESTORE OF SYSTEM FILES

An up-to-date backup of these system files should always be available at the system either on floppy disk or other media.

/easydata

config.cfg	configuration file
license.dat	License file
<host ID>.cus	customization file
`<host name>.cal`	`imager calibration file`

/easydata/UI/configuration

protocol.dat	Processing Presets

13.1 Collecting and Zipping all Logfiles

From the Start Menu select

- **2 Go to Service Menu**
  Password: `password`
- **6 PCR Systems**
- **2 File Transfer Menu**
- **1 Collect Logfiles** (evlog.zip is created, different to other EasyVisions (logfiles.zip))

If there are any problems with the EasyVision RAD or the whole system which need to be investigated create this zipped logfile as soon as possible or have it done by the personell on site. Logfiles possibly containing the error data will then not be overwritten.

13.2 ... via internal floppy drive

The Sun Ultra 5/10 have floppy drives. If that applies proceed as follows:

1. Insert floppy to diskette drive (not write-protected)
2. Goto **Service Menu**
3. Select: **2 SunOs Menu**
4. Select: **1 C-shell**
5. Enter the following commands:

`cd /`	change to the Root directory
`mkdir /floppy`	if not already done: make directory **/floppy**
`mount -F pcfs /dev/diskette /floppy`	mount the floppy

6. To copy files to floppy enter
   `cp </path/filename> </floppy>`

   to copy files from floppy enter
   `cp </floppy/filename> </path/filename>`

7. When done: unmount the floppy
   `umount /floppy`
8. **`exit`**

NOTE

You must unmount the floppy. If you don't unmount, data on floppy may be corrupted

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13.3 ... via Null Modem and Kermit

You need: A Null Modem cable and the **Kermit** file transfer program which is delivered with the system on a separate floppy (4522 220 84831).

1. Connect the Null modem cable to the EasyVision and the Service PC.Connect the Service PC (See Service Manual) to serial port B and reboot the EasyVision.
2. Insert the Kermit floppy into the PC.
3. Execute the following procedure:

   a: Go to drive a:

kermit	Start kermit program. If the screen stays black: press **Enter**
login: Service **Password: <host-id>**	Login on the EasyVision. Password is the HostID of the EasyVision workstation.

4. Select: **6 PCR Systems**
5. Select: **2 File Transfer Menu**
6. Select: **3 Manual File Transfer** **The following protocols are available**
7. Enter as follows:

kermit	start Kermit on EasyVision
server	set Kermit into Server mode **Kermit ready to serve...**
<Alt-X> and **<Enter>**	**MS-Kermit>**, back to the Service PC

   To transfer files from EasyVision to Service PC use the command **get** (e.g.**get /easydata/license.dat)**

   To transfer files from ServicePC to EasyVision use the command **send** (e.g.**send /easydata/license.dat)**

8. To stop Kermit enter:

finish	stop the server mode of the remote Kermit
connect	Go to EasyVision
quit	Stop the remote Kermit
exit	Back to the Service Menu
Alt-X	Back at the login prompt of the EasyVision
quit	Stop the Kermit program on the service PC

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14 PROCESSING PROTOCOLS

14.1 Compressing the file Protocol.dat

If a very large number of processing presets has been customized the file **protocol.dat** may exceed the capacity of a floppy disk with 1.44 MB. If this applies the file protocol.dat has to be compressed prior to storing it on floppy drive.

After having exported the processing presets to the standard directory the file is located in /easydata/UI/configuration/protocol.dat with a file size of 1.055.572 Bytes containing the default number of 473 processing presets. (*The growth per one extra processing preset which has been saved is about 2kB. So roughly estimated a number of 180 processing presets can be saved before the file protocol.dat exceeds the capacity of a 1.44 MByte floppy disk.)*

- From the Start Menu select :

  3 Service Menu

  2 SunOS-Menu

  2 SunOS (a C-shell is started in the service-directory)

- At the **C-shell** prompt enter:

  cd /easydata/UI/configuration

- Enter

  zip protocol.zip protocol.dat

  adding: protocol.dat (deflated 98%)

The file protocol.zip cannot be copied with the Advanced User Menu to a floppy disk because of the extension **.zip** instead of **.dat**. The above procedure will not recognize this file name. In this case the manual copying procedure has to be used.

14.2 Exporting the processing protocols

The complete set of processing presets can be ´exported´ in order to save all current presets. The presets can be saved either in a specific directory on the EasyVision RAD which is accessible via network as drive Z: on the PC of the USIT or on diskette if the EasyVision computer (Sun Ultra 5/10) is equipped with a diskette drive.

Later on, the saved set of parameters can be restored on the EasyVision or loaded on other workstations. To save a complete set a storage capacity of about 1Mbyte is required.

14.2.1 ... to the internal diskette drive

- In the window **Processing presets** click **Import/Export**.

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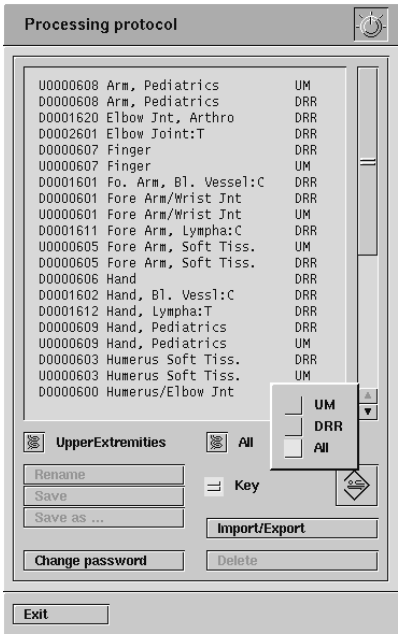
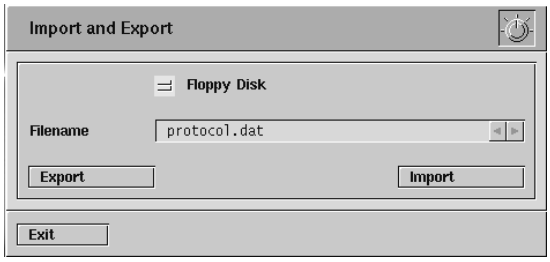


- Insert an empty DOS formatted diskette (1.44 Mbyte) in the diskette drive of the EasyVision RAD computer.



- Enable **Floppy Disk**

  In the entry field the file name **protocol.dat** will be displayed by default. Philips strongly recommends to use the factory set file name **protocol.dat** thus avoiding problems with later import of data. However any other file name can be used instead of **protocol.dat**. Stick to the DOS conventions (8+3 digits) when entering the file name. If another file name is used it is recommended to write it down since the EasyVision RAD cannot display this freely selected file name. In this case the file name has to be entered manually.

  ***Caution**: the system accepts an almost unlimited number of digits for the file name without returning an error message.*
  *It is strongly recommended not to use special characters together with the file name such as " \ / : * , " even though the system accepts it.*

- Click **Export**.
  The complete set of the processing presets will now be saved on diskette. If the save process has been terminated a message will be displayed.

14.2.2 ... via USIT

The Ultra60 doesn't have a floppy drive. In order to still save protocol.dat on floppy disk and to make the saving and restoring of the file 'protocol.dat' easier an automated procedure has been included into the advanced user menu on the PCR Terminal (USIT). This procedure copies the file **protocol.dat** from the drive Z: onto a floppy disk. Before you can use this procedure the processing presets must have been 'exported'.

Note: the procedure below works only if the default file name **protocol.dat** has been used when exporting the processing protocols.

USIT

- In the patient screen select **Utility**.
- Select **Service** (password required)

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- Enter **user** ; the advanced user menu will be displayed
- Enter: **8** (**Copy Processing Protocols from EasyVision to floppy disk)**
  The system returns the following messages:

```
Looking for preset protocol on EV
1 file(s) copied
Save EV preset protocol on floppy
1 file(s) copied
Saving done. Please remove floppy
Press any key when ready
```

The system starts with the copying

14.2.3 ... from a floppy disk to drive Z:

- Insert the floppy disk with the file protocol.dat in the floppy drive of the USIT PC
- Access the 'Advanced User Menu' and select item **9**. the system displays the message:

```
Make sure, that floppy with EV preset protocol is inserted in drive a:
    Press any key when ready . . .
```

- press a key

```
Get EV preset protocols from floppy
       1 file(s) copied
Restore EV preset protocol
       1 file(s) copied
Restoring done. Please remove floppy
Press any key when ready . . .
```

Note: This copying procedure will overwrite an existing protocol.dat in the standard directory **/easydata/UI/configuration** on the EasyVision without prompting for confirmation.

14.2.4 ... from USIT to floppy disk

- At the USIT : **Utilities** > **Service** > **5 OS/2 Command Shell**
- enter **Z:**
- the system prompts: **[z:\ ]** (you are now on the EasyVision RAD file system at the level: /easydata/UI
- enter **cd configuration**
- insert an empty DOS formatted floppy in the USIT floppy drive
- enter **copy protocol.dat a:**
- switch back to the USIT application
- remove the floppy from the floppy drive

14.3 Importing the processing protocols

Importing (restoring) processing presets either from diskette or from a specified directory is done analogous to Exporting. The imported processing presets will be copied to the SetupDatabase of the EasyVision RAD.

14.4 Deutsche Processing Presets

This is for you guys in Germany. Die von Gerd Wisotzky abgesegneten deutschen Processing Presets **protocol.ger** sind im Verzeichnis **/easy/service/images/import** zu finden. Bei der Installation lassen sich diese Presets einfach über das Preset Tool in der Applikation importieren. Einfach **Import** klicken und als Dateinamen /**easy/service/images/import/protocol.ger** eingeben. Diese Presets korrelieren natürlich nur mit der passenden deutschen Anatomy Database auf dem USIT.

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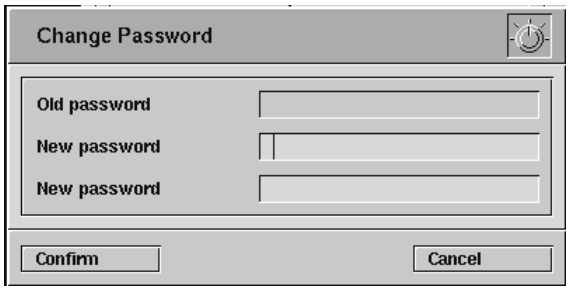
14.5 Using the preset password

The processing preset functions **rename**, **delete**, **Import/Export** can be protected against unauthorized use with a password.
If the password protection is active the password will be required once by popping up of the entry panel after a protected function has been selected. By typing in the correct password all functions within the processing presets window can be executed until the presets window has been closed.

If later on a protected function will be used the password is requested again.
Multiple false password inputs have no particular consequences.

14.5.1 Activating the password protection

- In the window processing presets click on ´Change password´
- The window ´Change password´ will appear



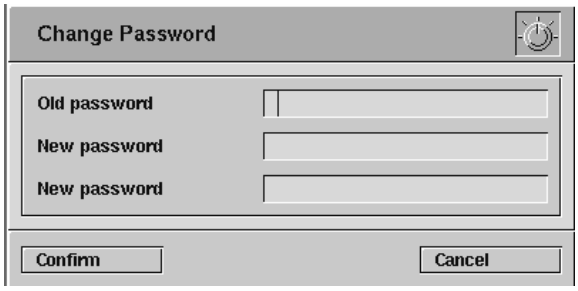
- Enter the new password twice and click **Confirm**.

  The password protection is active and at the next click on one of the protected functions the password will be required.

14.5.2 Change password

You may replace the current password by another one.

- In the window processing presets click on ´Change password´
  The window ´Change password´ will appear



- Enter the old password and subsequently twice the new password

  The new password is valid and will be asked for next time a protected function is going to be used.

14.5.3 Deactivate the password protection

You may deactivate the password protection.

- In the window ´ Change password´ enter the old password
- In the the fields ´New password´ leave the entries empty and click on ´Confirm´

  The password protection is deactivted

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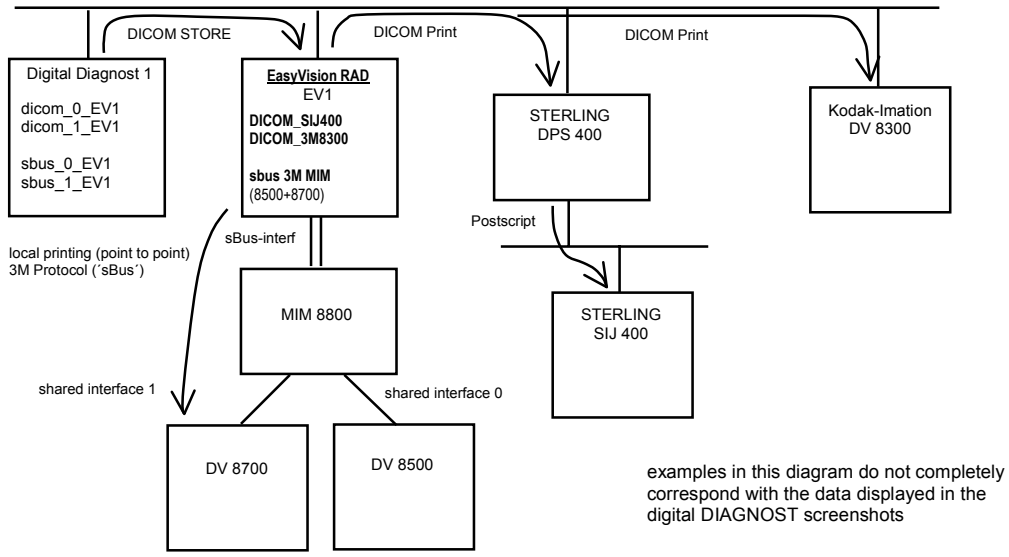
15 DIGITAL DIAGNOST REMOTE PRINT VIA EASYVISION RAD

The remote print function for the **digital DIAGNOST** via DICOM is available using an EasyVision RAD from Release 4.2L2 onwards. In this configuration the EasyVision RAD is working as a (DICOM/Local) Print Server. The digital DIAGNOST is able to remotely use both the printers configured on that particular EasyVision RAD (printserver) and the printformats specially designed on the EasyVision RAD for the digital DIAGNOST remote printing.
Those features have been integrated and will be delivered with the EasyVision RAD software from Rel. 4.2L2 on.

- The digital DIAGNOST can use EV remote print only on one EasyVision RAD at a time.
- On the digital DIAGNOST only one print function can be used at a time, either **HCU local print or EV Remote print**.



15.1 System Network Configuration

Preconditions:

- EasyVision RAD 4.2L2 with the correct License file running on an Sun Ultra (min. Ultra5)
- License file with options: EasyServer, EasyClient, EasyPCR, EasyPrint, Communication
- Both systems the digital DIAGNOST and the EasyVision RAD 4.2L2 are installed properly and set ready to operate on the network.
- The software license **EV remote print** installed on the digital DIAGNOST.

Survey of Actions

EasyVision

- In the configuration tool configure all sbus / DICOM printers
- Set up the DICOM node
- Load the digital DIAGNOST print layouts
- Execute the configuration
- On Exit the EasyVision automatically restarts in the proper way (reboot or Start Menu)

digital DIAGNOST

- In **Net Options** set up a DICOM node (corresponding to EV)
- In **Site information → EV Remote Application** select the EV
- Restart the system
- In **Imager definitions** activate all required printers
- In **Site information** select the **Default Printer**

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15.1.1 EasyVision RAD Configuration

15.1.1.1 Setting up a new DICOM Node

From the Startup menu select :

4 Go to **Installation/Configuration Menu**

2 Start Configuration.

password=*******

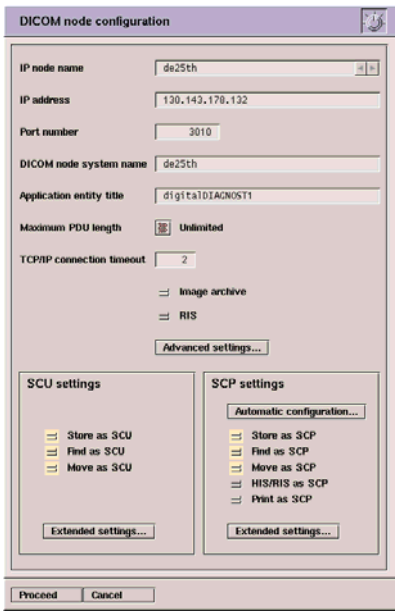
In the Configuration tool screen ´Cluster Data´, select in ´configured nodes´ →´ DICOM node ´ →New

The DICOM node configuration screen will be displayed.

Enter the following items:

IP node name:	DIDI1	hostname of the digital DIAGNOST; (example)
IP address:	130.143.178.132	IP address of the digital DIAGNOST (example)
Port number:	3010	fixed; (in case of EasyVision)
DICOM node system name	digitalDIAGNOST1	this name will be used in the EasyVision user interface
Application Entity Title	digitalDIAGNOST1	AET of the digital DIAGNOST (example)

- the entries for IP node name, IP address, DICOM node system name, Application Entity Title in the figure are examples and have to be adapted to the current situation.



- **SCU settings:** select **Store as SCU**and deselect all others.
- **Extended settings:** select **CR Image**
- **SCP settings**: deselect all

  Click **Exit** then →**Proceed** →**Execute** →**Keep existing local image Database, Keep existing processing presets** →**Confirm**

  After rebooting the EasyVision the configured DICOM node will be active.

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15.1.1.2 Available printers

The EasyVision RAD serving as a print server holds a special ASCII file with the file name ´configuredPrinters.dat´ in the directory /easydata/UI/configuration. This file contains all to the digital DIAGNOST available printers with their specific identification strings as they are used in the digital DIAGNOST user interface. Any printer name is listed in combination with the real printer name, the used film format, the film type, the resolution, all print protocols using that film format etc.

This is related to the philosophy of *digital DIAGNOST* determining for any examination and view a definite printer, film format, print protocol etc. . The user doesn´t have to care about those issues. In the application the system always selects the appropriate combination from the above mentioned list of print formats.

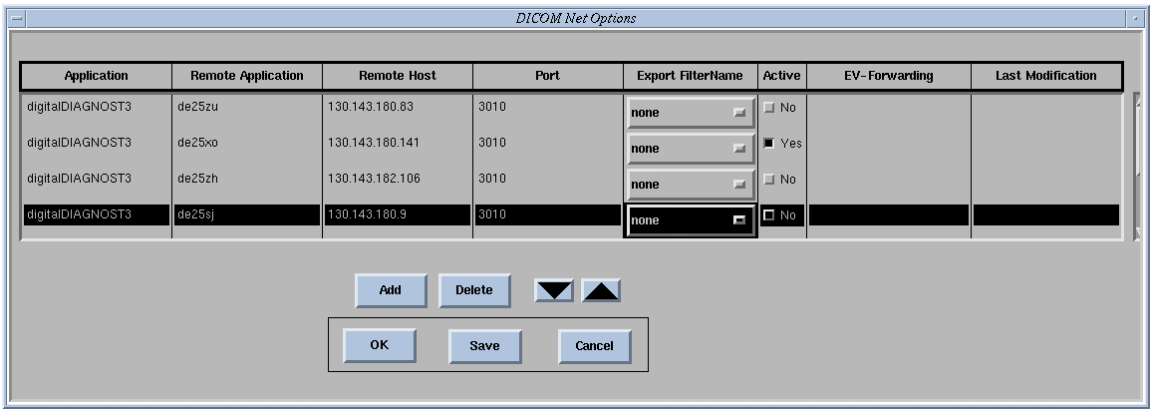
15.1.2 digital DIAGNOST Configuration

15.1.2.1 Setting up the DICOM node

A new DICOM node will be setup (under DICOM Net Options) which is necessary to establish a DICOM connection to the EasyVision RAD.
This will be done by performing the following steps in sequence from the application screen :

→ System → Service → Password = ****** → (Setup) Configuration →(Configuration Items) DICOM Net Options → Edit →Add

The panel below will be displayed:



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At this point the following entries are to be done:

Application	**digitalDIAGNOST1**	DICOM AET of the digital DIAGNOST (example); will be used as AET of the DICOM node on the EasyVision Printserver
Remote Application	**<AET>**	DICOM Application Entity Title(AET) of the EasyVision RAD; will not be sent to the EasyVision and will not appear on its user interface
Remote Host	**130.143.182.11**	IP address of the EasyVision RAD, (example)
Port	**3010**	fixed; (in case of an EasyVision)
Export Filter Name	**none**	
Active	**NO**	Must not set to YES for the EV Remote print node Only for autosending of DICOM images to the Archiving system marked with “Active” = Yes*

Click on: → **Save** → **OK**

***** If no archiving system is connected or the Forwarding function will not be used it has to be set to OFF first in the digital DIAGNOST ´*System Options*´

→ Service → Configuration items →´System Options´ → **StoOptDICOM** → **No**

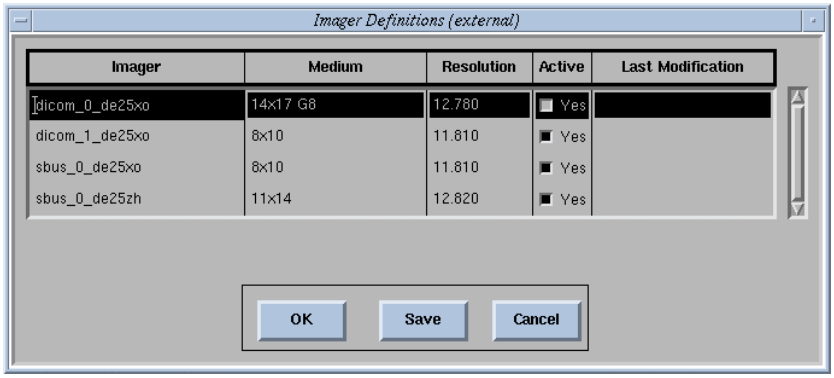
→ Save → OK

For detailed information refer to the digital DIAGNOST Service Manual:

Subsystem Workstation.

15.1.2.2 Setting up Imager Definitions

- From **Configuration Items** select the item **Imager Definitions (external)**
- In the panel **Imager Definitions (external)** you will find listed imagers like in the panel below



- The individual parts in the string ´**dicom_0_de25xo**´ in the field **Imager** separated by ´**_**´ indicate the following:
  - the first part ´**dicom**`or ´**sbus**´ means the type of interface this imager is using (dicom = Ethernet, sbus = local interf.)
  - the second part ´**_0_**´/´**_1_**´ means the order (**_0_** → the first,**_1_** → the second of the DICOM printers) in the EV configuration. With this number the DICOM/sbus printers can be distinguished and give the reference to the film format.
  - the third part ´**de25xo**´ means the **Remote Application** name of the EasyVision RAD print server which is used in *DICOM Net Options*. (this is an example)
- The field **Medium** indicates the film format associated with the identification string in field one.

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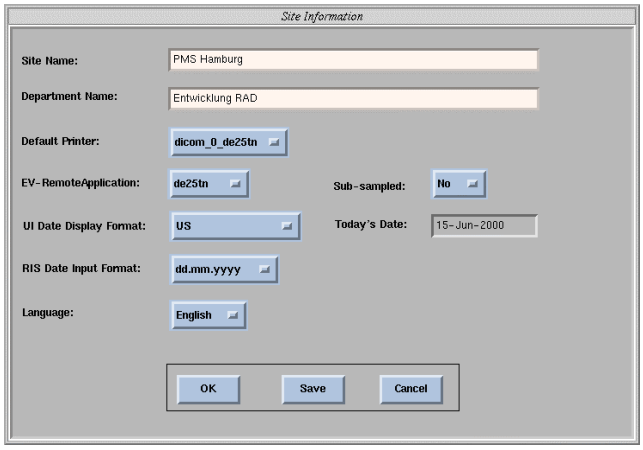
- The field **Resolution** indicates the Resolution in pixels per mm.
- In the field **Active** this Imager or Media can be activated or deactivated by clicking on the checkbox
- Click **Save** and Restart the digital DIAGNOST

15.1.2.3 Setting the Default Printer

To access the entry panel **Site Information** select the item **Site Information** from the Configuration Items.

Click on the button **Default Printer.** A small window will pop up displaying the list of available printers or media sizes on the basis of their identification strings (refer to *Imager Definitions*).

- With the button **EV Remote Application** select the EasyVision RAD you want to use as DICOM print Server.
- With the button **Default Printer** select the identification string representing the smallest media size on which the digital DIAGNOST should print by clicking on it.



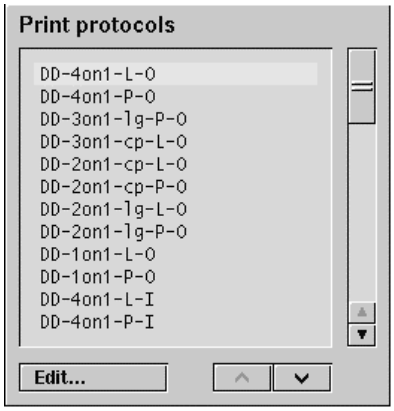
- After this configuration part the *digital DIAGNOST* must be shutdown and rebooted.

15.2 digital DIAGNOST print protocols

For the EasyVision Remote Printing the **digital DIAGNOST** is using special print protocols which must be available on the EasyVision printserver.

From the EasyVision RAD Rel. 4.2L2 on 20 special print protocols for the EV Remote will be delivered on the distrbution media in addition to the PCR standard print protocols and those for THORAVISION, BolusChase etc.

In the user interface the digital DIAGNOST print protocols look like those displayed in the figure below. Their names are always starting with the prefix ´DD-´.



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15.2.1.1 The digital DIAGNOST Print Protocols

If an EasyVision or an EasyVision RAD will be upgraded from any Release < 4.2V2 L2 to Release 4.2V2L2 a full installation (OS and Application) of the EasyVision RAD software is mandatory; If this applies the default set of print protocols will be installed.

If later on the application asks for the (new) default print protocols distributed with the EasyVision RAD Rel.4.2L2 CD-ROM including the new set of 20 digital DIAGNOST print protocols they have to be loaded manually. This can be done either loading a special file in the SetupDatabase screen or from the Customization tool.
In both cases the default PrintProtocols will be loaded without deleting the custom print protocols.

Note

In order to prevent the custom print protocols from unintentionally being deleted the loading of the default print protocols has to be done cautiously.

15.2.1.2 Backup of Custom Print Protocols on EasyVision RAD

If the custom print protocols are to be kept then proceed as follows (EasyVision RAD):

- From the configuration tool change to the SetupDatabase screen
- Click **Query**. In the Query panel check the box **Customizable Objects** then **Confirm**.
  In the SetupDatabase object list window all PrintProtocols (among other objects) will be displayed. (multiple scroll)
- Highlight the print protocols to be saved. - Multiple selections with the middle mouse button – Dismiss selections and scroll with left mouse button
- If all desired lines are highlighted click **Load/Save**
- In the entry window enter the path you want the backup file to be saved and file name (PrintProtocols.bckup). For ´path´ choose a directory which will not be overwritten by a software installation, such as /dbadmin.

15.2.1.3 Deleting the Current Print Protocols

Before you restore the default print protocols all current print protocols must be deleted.
Proceed as follows:

- From the configuration tool change to the SetupDatabase screen
- Click **Query** . In the popping up Query panel check the box **Customizable Objects** then **Confirm**
- In the SetupDatabase object list window all PrintProtocols (among other objects) will be displayed. (multiple scroll)
- Highlight all print protocols to be deleted. Click on **Delete**. In the prompting panel click on **Confirm**.
- In the SetupDatabase list window all the selected lines will disappear

15.2.1.4 Restoring the Default Print Protocols

This procedure describes how to restore the default print protocols from the distribution CD-ROM EasyVision RAD Rel. 4.2L2

15.2.1.4.1 ... via the SetupDatabase

- Exit the Application with the door handle
- Select **`4 Go to Installation/Configuration Menu`**

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- Select `2 Start Configuration`
- From the configuration tool switch to the SetupDatabase screen with the door handle
- Click **Load/Save** . Enter the path and file name: **/easy/appl/defaults/PrintProtocols.setup** and click **Load**
  All default print protocols will be loaded and step by step appear in the SetupDatabase window.
- Switch back to the configuration screen via the door handle icon
- In the Configuration screen click **Execute** , then **Proceed**
- Exit from the Configuration screen and restart the Application

15.2.1.4.2 ... via the Customization Tool

Alternatively you can use the customization tool; proceed as follows: start the Customization tool

- In the screen area **Print Protocols** select under Application package **PCR Viewing**
- Delete all standard print protocols; keep all customized print protocols and click **Save**
- Exit the Customization tool and start it again
- Activate on the top bar **Restore PMS settings** and click **Save**
- Select again **PCR Viewing**; all standard PMS print protocols plus all customized print protocols are now available.

15.2.1.5 Restoring the Backup Custom Print Protocols

Note: Make sure that the backup (example: printprotocol.bckup) file is stored in the correct directory and none of the default print protocol files has the same name as one of the custom files.

- In the SetupDatabase screen click **Query**.
  In the popping up Query panel check under **View classes** check **User defined**. Click **Confirm**.
- In the input window enter the path and the file name of the backup file (for example : **/dbadmin/PrintProtocols.bckup**) and click on Load
- The print protocol files contained in this backup file will be loaded to the SetupDatabase and appear in the list of available print protocols
- Exit the configuration tool and restart the system

Note: It is necessary to **Execute** the configuration after any of the above procedures

Note: Both the EasyVision RAD and the digital DIAGNOST have to be rebooted to make these changes effective.

15.2.2 Printing digital DIAGNOST images and PCR images on same Film

Using the EV Remote Print functionality both image types from digital DIAGNOST and from PCR can be printed on the same film. In this case it would be useful to use the option " Patient name once ". this option can be activated in the EasyPrint print tool : PCR print format editor.

The condition for this option to work properly is that all of the data elements listed below have to be identical for all images to be printed on the same film:

Data elements which must be identical on all images for using the option "Patient name once"

DICOM_PATIENT_NAME
DICOM_PATIENT_ID
DICOM_PATIENT_BIRTHDATE
DICOM_PATIENTS_BIRTH_TIME
DICOM_PATIENT_SEX
DICOM_OTHER_PATIENT_NAMES
DICOM_PATIENT_BIRTH_NAME
SPI_PATIENT_ENTRY_ID
DICOM_ACCESSION_NUMBER
DICOM_INSTITUTIONAL_DEPARTMENT_NAME
DICOM_INSTITUTION_NAME
DICOM_MANUFACTURER

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- If the option “Patient name once” has been selected but one or more of the images printed on the same film doesn´t conform to another image regarding at least one of the data elements above listed the patient name will not be printed on the film at all. The name field on the film will be filled with “ *** “. This film is not valid and cannot be used.
- An image can be temporarily printed out with the option “Patient name once” switched off. On this film the patient name will be printed on any of the images.

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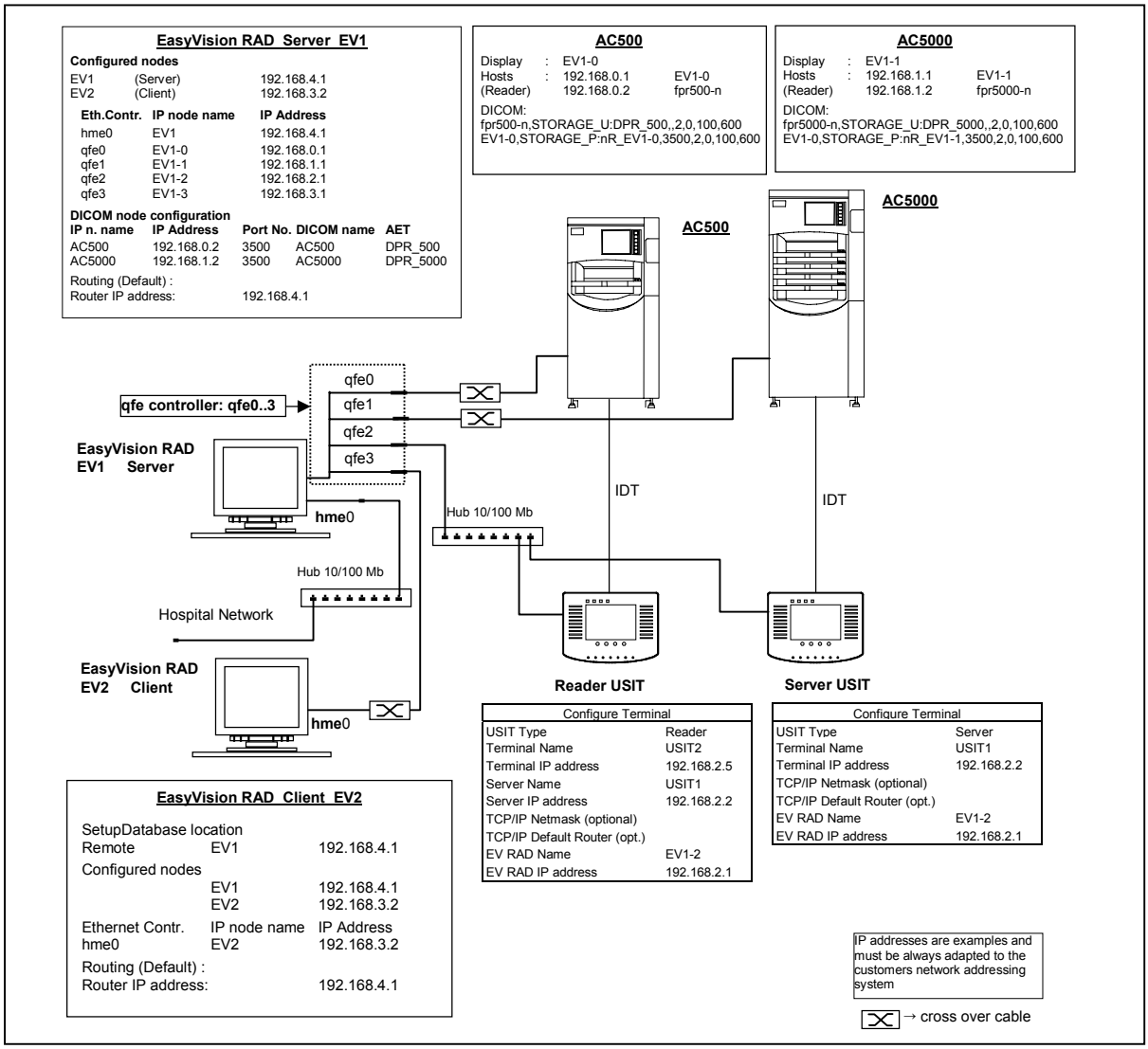
16 QUAD FAST ETHERNET CONTROLLER

The Quad Fast Ethernet Controller (Qfe) offers four independent switchable 10/100Mb Ethernet channels with auto negotiation and provides operations of up to 100 meters of Twisted Pair without repeaters. The Ethernet channel **hme0** included (always integrated in a Sun Ultra 5/10/60) there are five independent networking channels available in one EasyVision. In consequence each channel must be configured as a separate Ethernet controller with its own IP address. This provides the advantage of separating the net load to different network segments.

The hardware installation and hardware testing is described in detail in the EasyVision (RAD) 4.2 Service Manual in section Programmings.

Example for a configuration of a PCR system



The PCR system of the above shown example is equiped with :

- one EasyVision RAD Server
- one EasyVision RAD Client
- two Readers, AC500 and AC5000 each connected to a separate qfe channel via TP cross cables.
- two USITs, one Server USIT one Reader USIT both connected to the same qfe-channel via a hub.
- This is done in this case to avoid network crossover cabling. USITs may have problems to establish their network link particularly at system startup time or to maintain the link to each other and to the EasyVision in critical situations. This could end up with multiple attempts to re-establish their physical and logical links. The hub solution conforms much more the Ethernet twisted pair rules.

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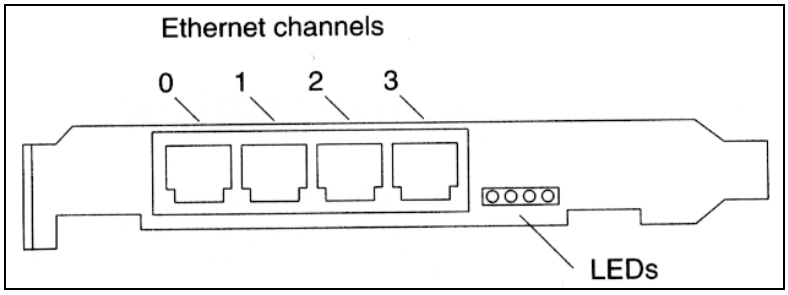
- In addition with a hub one more qfe channel can be saved and the maximum distance to the EasyVision expands to 200 meters.

Ethernet Controller Settings
In the EasyVision configuration screen select under Controller→ **qfe** → **New** (for the 1st channel qfe0, the other channels likewise). If channel qfe1/2/3 will be configured before qfe0 the number 0 has to be changed to the number of the connected channel.



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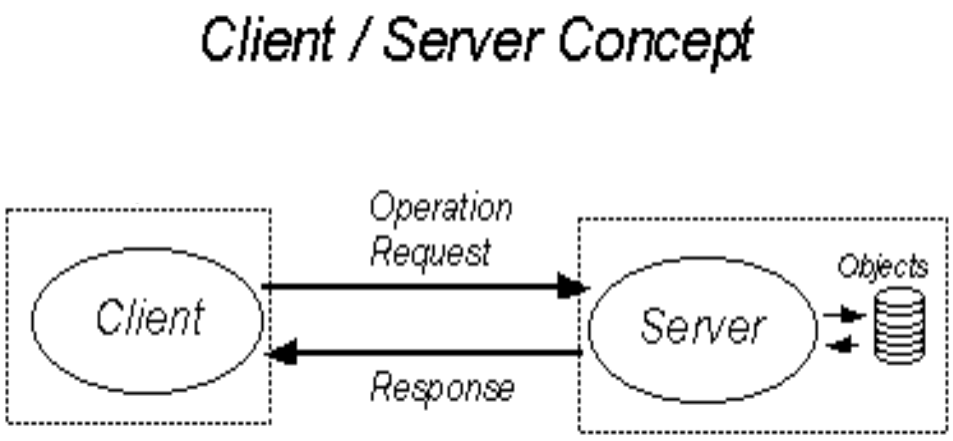
17 SERVER/CLIENT CONCEPT EASYVISION RELEASE 4

EasyVision RAD products before R4.x are sold and used as "Stand-Alone" workstations: The information (data) that is used by the user during the work on an EasyVision RAD normally resides on the EasyVision itself (in the database of the EasyVision).
Data can be imported from other sources (modalities or other workstations) and stored in the EasyVision database for use. Very often, the source(s) is (are) very determined, and have a dedicated link to the EasyVision due to the modality-orientation of the EasyVision products. This can also be a small, separate network.

With the introduction of EasyVision Release 4 there is also the possibility to create a Client/Server environment. This type of system is based on a Client/Server computing technology.
This means a different configuration will appear. Users on a workspot use information that resides on a database on a central Server and may be received from a larger variety of sources.



Yet because of its particular position connecting to PCR Readers and the limited performance of standard hardware an EasyVision RAD shouldn't be loaded with other performance consuming application packages.
When there is only one EasyVision connected to one or more modalities, the situation is comparable with the situation before release 4. To differentiate between such a single EasyVision and those in a cluster configuration, we call the single EasyVision workstation a Stand-Alone system.

17.1 Client / Server Network

If a Stand-Alone system is no longer enough to do all the work, one can decide to connect some modalities to a second EasyVision. Resulting in two installations of EasyVisions, each with its own modalities connected. Now a better solution is available with EasyVision RAD R4.2V2 by connecting multiple EasyVisions to each other to create a cluster: mini-PACS.

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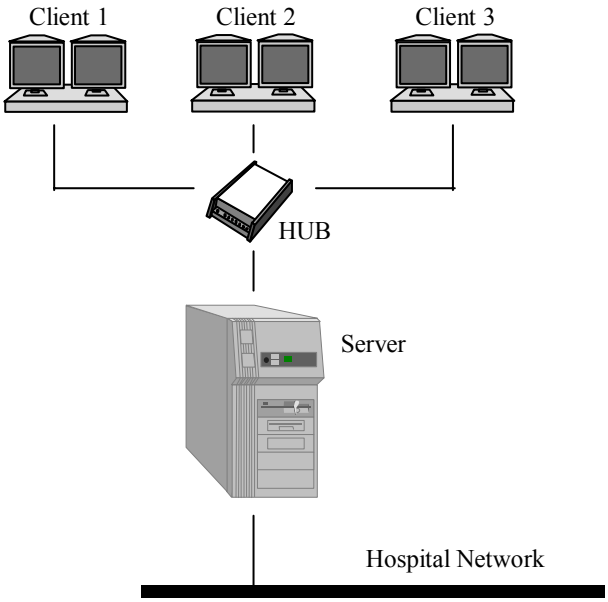

The next step can then be to connect other products from the PMS product portfolio, or from third party vendors, via the hospital network to create a full scale, multi departmental PACs system.

17.1.1 The EasyServer

Within a Client/Server network, the EasyVisions use a common place to store their images which is called the EasyServer. It controls the configuration of the cluster by controlling the software licenses, it handles the import from modalities, the printing to film, and all communication outside the cluster, for instance with the RIS, the archive, external DICOM databases, or other clusters and “alien” workstations. The hardware configuration for the EasyServer ranges between a SUN UltraSPARC 10 system and a SUN UltraSPARC station 60 system.

17.1.2 The Client (or Workspot)

The EasyServer makes all images available to all EasyVisions in the cluster. The EasyVisions actually running the applications (the Workspots) are dedicated for this purpose. The hardware configuration of the Workspot may vary from an UltraSPARC 10 with lots of memory for fast and intense image processing, to a PC with a Java enabled Web Browser for basic image viewing. This wide selection enables us to offer the customer workspot configurations that are tailored for specific needs.

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18 ADB CONVERT

The program **adbConvert** (AnatomyDataBaseConvert) looks for the examination and view names in the Anatomy Database on the USIT and writes it to the corresponding Processing Presets on the EasyVision RAD .
Presets which are not used in the Anatomy Database will NOT be listed and will not appear on the EasyVision RAD
As soon as something on the Anatomy Database has changed ADBConvert must be executed again.

The program adbConvert will be started as follows:

- From the Service Menu select :
- **6 PCR Systems**
- The PCR Systems Menu will be displayed

```
PCR Systems Menu:
   1 File Transfer- and Compression Settings Menu

   2 File Transfer Menu  (log – and image file transfer)

   3 ADB Convert              (synchronize Anatomy Database and
                              ProcessingKeys)
   4 Set Serial Interface Parameters


   0 Return to Main Menu

Enter the number of your choice: 3

The PCR user Terminal Service Password is required.
Enter the password ([Enter] to take default password)
```

(to exit this state enter **CTRL-Y***, the prompt EV1# will appear ; enter* **exit,** *the system will output the message* – there are stopped jobs *; again enter* **exit** *and the system will return to the startup menu.)* After pressing the Enter key and if necessary typing in the USIT server password the following messages will be displayed:

```
Creating ADB file on PCR User Terminal.
The ADB file on the PCR User Terminal was successfully created.
Press Return to continue with the file transfer to EasyVision RAD and
conversion of the anatomy database:
```

On the EasyVision RAD screen the system lists all actions which are remotely started on the USIT and the information output of the ADB Conversion process running on the EasyVision RAD.
At the end of the procedure the system outputs the message:

```
stopping setupDbServer on EV1 for setup
Thu Aug. 5 17:10:37 MET DST 1999: setupDbServer stopped on EV1

The ADB Conversion is finished.
Press Return to continue:
```

Pressing the Return key the system will display the PCR Systems Menu.

18.1 Install Processing Presets from Release 2.3

- shutdown Application to main menu
- goto Service (3) and file menu (3) and to logfile inspection (1). A command-shell will be opened.
- insert the EasyVision RAD 4.2 CD in the CD-ROM drive
- **cd /APPLINST**
- **Easy_tools_inst**
- **cd /easydata/prop**

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- via the USIT copy the old presets.apf to directory easydata/UI (drive Z: on the USIT) it may be necessary to change to write enable on easydata/UI with the command : **chmod 777 /easydata/UI**

▪ alternatively you can copy the data directly form the floppy drive of the Ultra:

- Insert floppy into drive and enter from unix:
- **/usr/sbin/mount -F pcfs /dev/diskette /mnt**
- **cp /mnt/PRESETS.APF /easydata/UI/PRESETS.APF**
- **/usr/sbin/umount /mnt** *unmount floppy and remove it*
- **dos2unix /easydata/UI/PRESETS.APF presets.apf** *convert file from DOS to unix format*
- **../toolbin/makepf presets.apf ProcessingParameter.pf***generate new processings;*
- exit service menu
- start EV Configuration
- **execute** configuration
- at question "Keep-existing database" select "reset to factory setting"

Now the old presets should be available. Don´t forget to remove the CD-ROM.

▪ If you again want to use the default factory processingPresets delete the file ProcessingParameter.pf (which previously was generated with the makepf command from the directory /easydata/prop) using the command:

- **rm ProcessingParameter.pf**.
- Start the configuration tool and click **Execute** as described above.

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19 COMMUNICATION WITH PHILIPS MEDICAL SYSTEMS

Helpdesk Hamburg

Address	Philips Medical Systems Roentgenstrasse 24 D-22335 Hamburg Germany
Telephone	+49 40 5078 - 2369 or 2037
Fax	+49 40 5078 - 2348
e-mail	helpdesk.xray.hamburg@philips.com

Technet
The Technical Support pages on the Intranet (Technet) can be reached by using this address:

http://sts.best.ms.philips.com

From here you can reach the support pages of the PMG RAD for PCR systems. If EasyVision in general is concerned select the Customer Services homepage of the PMG MIMIT.

Newsgroup
The newsgroup for PCR technical support can be reached from here:

19.1 Field Problem Report

If a problem with the system arises which can be attributed to a general error in the system it should be reported via Field Problem Report to the HelpDesk Hamburg.

Please attach as much information as possible to the FPR. What we like to get is:

- **evlog.zip** (all PCR logfiles, see chapter 13.1)
- relevant information on the actual configuration
- if the problem can be seen within the image: films
- if the PCR Reader is concerned we need always the serial number of the Reader itself

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